# BULLETIN OF THE HISTORY OF MEDICINE

ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE
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*Editor*—HENRY E. SIGERIST

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## WAR AND CULTURE


HENRY E. SIGERIST


The war is in its third year. It has spread to one country after another and has truly become a world war. If ever a thesis has been proven correct, it was that of the indivisibility of peace. Millions of people, men, women and children, have already died and many more millions are doomed. Millions of families have been driven from their homes. A migration of nations, such as history has never seen before, is going on. The lights have gone out. Will it be total darkness? Will the world revert to barbarism?

First, we should remember that if the lights went out, it did not happen in 1939. The 21 years between the two world wars were anything but years of light. From the moment the treaty of Versailles was signed, the world knew that it must expect a series of new wars. They came soon enough. From 1931 on, one country after another was invaded by aggressive nations with the tacit consent of the great powers. The world, after it had recovered from the immediate effects of the last war, went through a period of economic boom with all its disgusting symptoms when people believed that they could advance themselves in the world by gambling instead of by performing honest hard work. Then came the crash of 1929, ten years of economic stagnation, with millions of people deprived of work and suffering mental and physical misery, in the midst of plenty, in sight of the idle tools they could have handled so well.

The lights went out, not in 1939, but around 1911 when the process of which the present war is but an episode entered into its critical stage. We have had a thirty-years' war already.

The purpose of this article, however, is not to discuss the causes of the war. There is another point that I have much at heart, the preservation of culture.

War and culture do not go together. War is always a reversal to primitive savagery. Whenever a war breaks out, it signifies that civilization has collapsed somewhere. It shows that the civilized methods of solving a problem—international cooperation, scientific planning, negotiation and arbitration — have failed and that there seemed nothing else left but to settle the argument—for the moment—in the primitive way, with the fists. Nobody can kill fellow men with impunity. Of course we know that killing in self defense is legitimate and that many noble actions, deeds of great heroism, are performed in war. When a country is attacked by a ruthless enemy, it has only the choice between fighting back or accepting ignoble servitude. We atone for the killing by being willing to sacrifice our own life. We know, nevertheless, that blood always leaves stains, and that no one kills without suffering for it. War is always savage and the negation of culture.

War is destructive. It destroys not only human lives but also historical records that constituted the memory of nations, works of art that were sources of inspiration to generations. The world will be greatly impoverished in its cultural heritage after this war, although the actual loss may not be as great as we would expect because the war was so easy to foresee. At a time when statesmen were too stupid or too cowardly to prepare for war, librarians and directors of museums showed more wisdom and courage and did get ready.

War destroys endless numbers of actual and potential material values that could have been used for cultural purposes. Uncounted millions of hours of labor are spent to produce the instruments of destruction. On armistice day highly specialized machinery, wonders of technology, worth billions of dollars, will all of a sudden turn into mere scrap iron. A fraction of that money would have been enough to provide the means for eradicating a number of diseases. When last summer two battleships were sunk within a few days, the *Hood* and

the *Bismarck*, values went to the bottom of the sea that would have been sufficient to equip and maintain two universities.

War always tends to lower the cultural standard of all people involved. In war time the armed forces automatically become the most important section of society. As a result of hardship, enforced celibacy and the constant proximity of death, the soldier's most urgent want becomes the satisfaction of animal instincts. The rest of the population, whose main function becomes that of supplying the armed forces with all they require, is obviously affected by this attitude.

And yet culture is needed in war time more than ever. Why? War is not an end in itself; only the perverted ideology of Fascism could declare war the normal condition of mankind and peace the mere interval between two wars. War is to society what an acute disease is to the individual, a deep crisis in the course of its life. Whether it results in recovery or death depends to a large extent on the cultural forces that a country possesses. France was thoroughly defeated in 1871, and yet the country recovered in an incredibly short time. It did so because Claude Bernard was still alive, because Berthelot and Pasteur were at the height of their careers, because the country had scholars like Renan and Taine, writers like Flaubert and Zola, composers like Saint-Saëns and César Frank, because the impressionist school was just bursting forth. Where such powerful creative forces are at work a country cannot be defeated. It took Germany with her *Gründerjahre* much more time to recover from her victory.

In 1918 Germany had collapsed and yet there were strong symptoms of recovery. The young students who returned from the war threw themselves body and soul into the most abstract studies. Science flourished with men like Einstein, Meyerhof, Warburg. In the universities, the departments of classics, Sanskrit and Chinese were crowded as never before. New chairs were created every day. When finances were at a very low ebb, the Prussian government spent one million marks for the purchase of an archaic Greek statue of incredible beauty. It justly felt that this was one of the best investments a defeated nation could make. The country approved of the purchase, and the statue became a source of inspiration and happiness to innumerable people. If Germany did not recover, but developed into a malignant power that threatens the world with destruction, it

was partly attributable to the fact that the war did not actually end in 1918 but was continued with different means.

Today wars are fought on such a tremendous scale that every party, victor and victim, is bound to suffer. Every party's economy is shattered after the war, and every one must face a tremendous task of reconstruction. Such a task cannot be fulfilled unless a country has preserved its cultural resources intact, and the greatest mistake we could make in the present emergency would be to neglect our institutions of culture.

Of all branches of learning, the sciences will probably suffer least. Modern warfare has become so highly technical that it requires the mobilization of all scientific resources that a country possesses. Every day presents new problems, and the war undoubtedly will accelerate the development of many branches of science. Of many, but not of all. War science is necessarily one-sided. It is primarily technical and calls for the engineer, the physicist and chemist. After the war, however, we shall be in dire need of a universal science. The task will be infinitely greater than at the present moment, when we shall have to use all the scientific knowledge we possess for the reconstruction of the world, when we shall have to apply scientific principles to the basic processes of social life, production, distribution and consumption. This is why right now we must not neglect but, on the contrary, must develop such seemingly unnecessary fields as genetics, theoretical biology, history, sociology and philosophy of science.

To medicine every war is a challenge. The armed conflict creates an emergency which calls for large numbers of personnel and presents many new problems. The number of physicians needed per capita of the armed forces is much larger than that normally required for the population. No country has a reserve of medical personnel. Hence there is bound to be a shortage of physicians in the civilian population. This is particularly serious in modern wars which are fought not between armies alone but between nations. The shortage must be compensated by improved organization that will eliminate every source of waste and inefficiency. Thus war becomes a testing ground for a nation's ability to organize all its health services, and it may become a rich source of experience for the organization of services after the war.

I think we are all aware that when this war is over, the world will be different from what it was before. There will be no return to the happy-go-lucky methods of the past. Even in times of great prosperity we were unable to provide all medical services to all the people who needed them. The organization of medical care will be imperative after the war, and we must do the planning now.

The medicine and surgery practised on battlefields are obviously not always of the highest quality because of the pressure of the emergency. The preservation of standards requires that medical research and teaching institutions be kept intact and functioning as much as ever possible. A research institution is a very delicate organism. The disruption of teams of researchers hampers its efficiency and thus harms the nation.

We must intensify our studies not only in the basic sciences, in clinical medicine and public health, but also in view of the post-war problems in the sociology and economics of medicine.

The necessity of not neglecting the social sciences is obvious. History is one of the most powerful driving forces of life. Every situation that we come to face, every problem that we are called upon to solve, are the results of historical developments and trends. The way we act is largely determined by the picture we have of our past. Without sound knowledge of history we can act instinctively and opportunistically, but we cannot act intelligently. The present conflict is the climax of historical developments of which the origins reach far back, and we cannot understand it unless we are aware of these processes. History does repeat itself. Germany again overran France following the old plan of von Schlieffen. Russia is defeating Germany very much along the lines of Kutusov's tactics and recently an attempt was made to revive the old method of "Copenhaguing" a fleet. The reconstruction of the world after the war will call for a mobilization of all resources of historical scholarship we possess, and it is therefore extremely important that the work that is going on at the moment be not interrupted. Studies that may seem far remote from the present problems may all of a sudden become of very acute interest.

What has been said of history applies also to other social sciences such as economics, sociology, anthropology and geography. We must admit that the present war is not merely a struggle for markets, but

that deep social and economic issues are involved. The world has changed in the last hundred years. We live in a highly industrialized, highly technical and specialized society that calls for solidarity. We depend on each other for our welfare more than ever. After two centuries of enlightenment the day will come when the people will refuse to produce anarchically, in fits, following the whims of a stock market, in periods of boom and depression. They will call for the scientist to replace the gambler and will refuse to accept economic crises as natural catastrophes. They have assumed the duty to work, but they will claim the right to work. Hitler would never have obtained a following if he had not succeeded in giving his people an amount of social security for which they were willing to sacrifice their liberties.

Whether we like these developments or not makes no difference. They exist; and the step from the competitive to the cooperative society will be taken. We can oppose developments and prolong throughout the century the period of wars that began around 1911. But we can also courageously face the situation in which we find ourselves, make the necessary adjustments in a democratic way, and thus shorten the period of wars.

Since the world has become very small, solidarity is needed not only among the citizens of one commonwealth but among nations. We may succeed in having a high standard of living in this country, but if our neighbors of Mexico or Japan live on a low standard we can be sure that this will affect us and cause trouble for us. Not only war and peace but also misery and prosperity are indivisible. The time is gone when one country could prosper at the expense of another. Nations are seeking not only political but economic independence, and the colonial problem will require thorough revision. Trusteeship over the still undeveloped races must become one in fact and not only in name.

Poverty still is the curse of mankind. Wherever we attack a problem, in every country, we encounter this seemingly unsurmountable barrier. It can be overcome. We already possess the technology that permits us to do this, and science is giving us new weapons every day. What we need are adjustments in the social organization.

The social scientists are facing a task of tremendous magnitude,

a task that requires not only knowledge but imagination and courage. Their work is needed more than ever if we wish to win not only the war but the peace as well.

To the law every war is a serious test. Attempts to legalize war and to have it follow rules have failed with few exceptions. When a nation is fighting for its existence, every means seems right. War is international anarchy, a reversal to the law of the jungle. War is terribly confusing to the people's sense of right and wrong and to their sense of justice. Actions that are considered criminal under normal conditions are glorified when performed on the enemy. In war guilty and innocent suffer alike, and many more innocent than guilty. War hysteria may develop under certain circumstances and lead to a distortion of the law. This has happened more than once in history. Yet the law is the most important cultural institution of a nation, its very backbone. In a great emergency, in self defense, a nation has to curtail rights, must impose duties and must sometimes apply methods that it would never use in normal times. Great care must be taken, however, that the basic rights remain untouched. The justice of a cause suffers irreparable damage if the people lose confidence in the general administration of justice.

The cultural fields most likely to suffer from the war are the humanities and the arts. To the superficial observer they may seem a luxury that a country cannot afford in times of emergency. Nothing could be more wrong. Studies in the humanities are like those in "pure science" which are pursued for their own sake without any regard for practical applicability. And yet many such studies have led to great practical results. In the same way, studies of pure scholarship may prove to be of great practical value. England, France, Germany and Italy developed strong schools of Oriental Languages. They were centers of research investigating the languages, literature, history and institutions of the countries of the East. They also served for the preparation of consular officials, missionaries and other persons who intended to live and work in the Orient. We have neglected developing such a school, and yet there is no doubt that at the present moment it would render invaluable services.

A great country like the United States with extended international relations never knows when it will need expert information on

Eastern European, Asiatic or African affairs. If such information is to be accurate, it must be based on scholarly research. Research institutions, however, cannot be improvised. It takes years for them to mature.

It would be perfectly stupid to neglect German, Italian or French studies because we dislike the present rulers of these nations. The great cultural values with which they have enriched the world so lavishly are timeless and will continue to exert their creative power when the memory of the present rulers will be a mere shadow. Quite apart from the cultural value of such studies, they have right now tremendous practical importance. Sooner or later we shall sit at the conference table with the delegates from these nations, and we shall face the task of rebuilding the world together. The more we know of each other, the more intelligently we shall be able to act. We shall need information, not only about their geography and economic conditions, but also about their psychology as it reveals itself in their literature which becomes accessible only through the language. I think we are now paying a high price for having neglected a more careful study of Germany. If we had learned from past mistakes, we would now crowd the German departments of our universities.

As was said before, war is to a society what a serious illness is to an individual. It suddenly interrupts the normal rhythm of our life, suddenly breaks in upon our daily routine. The proximity of death sets the mind in motion. We suddenly see problems that we never had the time to consider. Accepted values are re-evaluated. Has our life been what we wanted it to be? Have we been true to our principles? If we have failed, what can we learn from our failures and how shall we live in the future? A serious illness has been the turning point in many an individual's life.

In a similar way, war interrupts the normal life of a nation. The sudden emergency that breaks in like a natural catastrophe threatening destruction calls for a careful and sincere analysis of the nation's past and present, and for a re-affirmation of principles. Has it lived up to its great traditions? Has it merely paid lip-service to them or has it progressed in a creative way approaching and solving new problems in the spirit of its traditions? Is it prepared for the future, not only for the war but for the world that will follow it?

Paradoxical as it sounds, the most powerful makers of history are not the statesmen nor the generals, but the philosophers. There would be no United States without the philosophers of the period of enlightenment. Napoleon's power was due not so much to his military genius as to the fact that he represented the ideas of the French Revolution. Karl Marx wrote a book in the library of the British Museum and the result was the Soviet Union. The philosopher is a product of his time, to be sure, of the society of which he is a member. He is not a specialist, but using the results of specialists he studies the world in its entirety and is able to formulate the views and aspirations of the people. What millions of people only vaguely feel, he can express in words and put into a system. Once formulated, a philosophy becomes a powerful driving force. The most formidable weapon the United States possesses in this war is not its Navy, not its Air Force or Army, but its Declaration of Independence and Bill of Rights.

The philosopher is the nation's intellect. He thinks and is able to formulate thoughts. The voice of the people that expresses its emotions, its joys and sorrows, its hopes and fears, its anxieties and elation, is the artist. The writer, the poet, the painter, the sculptor, the composer, they all hold a very important place in society that becomes still more important in times of stress and strain. In such times they must live still closer to the people, working and feeling with them. They have the gift of expression. Their voice, their works liberate, stir, elate, or express the anguish that many feel. Deep as an emotion or an experience may be, it passes and is soon forgotten unless it has found artistic expression.

A good test for the justice of a cause and for the creative forces it possesses is to be found in the artistic manifestations it produces. The Spanish war was a good example. The Loyalists fought against a coalition of Fascist and Fascistically inclined powers for political and social justice, for the liberation of the people from the bonds of poverty, disease, ignorance and superstition. They gave their blood to build a better world for their children. Illiterate soldiers learned to read and write in the trenches between two battles. Schools and nurseries were built while the country was fighting for its very existence. There is no wonder that on the Loyalist side there was an outburst of poetry while nothing came from the Fascist side which was

fighting for the preservation of a rotten status quo. I do not know any more stirring and moving document that the *Romancero General de la Guerra de España*. The Fascists could execute tens of thousands of people, but they will never be able to kill these verses and songs. They live in the hearts of the people. With these songs on their lips the people of Spain will rise again and this time will succeed in liberating their country.

The preservation of culture and of all cultural activities in a period of national emergency is a task the importance of which cannot be estimated highly enough. Our schools, libraries, museums, conservatories, theaters and studios are arsenals too, and the people working in them are soldiers also, fighting for the common cause. The cost of maintaining cultural institutions is infinitesimal compared with the costs of actual warfare. The benefits derived from them are endless and the attempt to curtail funds for cultural activities would be suicide.

Mere maintenance of what we possess, however, is not enough. In times like these, history moves very fast. Stagnation means retrogression. We must advance to keep abreast of the march of history. And this requires honest, courageous self-criticism.

Today the issue is clear. We want to defeat not only German, Italian and Japanese imperialisms because they happen to clash with our own economic interests; we also want to defeat Fascism. We do not want to be ruled by a political philosophy that denies equal rights to all men and women, to all races and creeds; by a philosophy that denies the fact that the people are able to govern themselves. We also want leaders but not sultans. We refuse to live in a world of fear and apprehension, and we cherish the basic rights that the American Constitution guarantees because we are willing to accept the duties they imply.

We must be aware, however, that there is Fascism not only in Germany, Italy, Japan and their satellites, but that conditions which lead to Fascism exist in every country. Fascism must be exterminated not only on foreign battlefields but on the home front as well. If we abhor Hitler's racial policy, we must not apply it at home. No institution that discriminates against fellow-citizens on account of their race, creed, or sex has a right to use the word democracy. If

we abhor Hitler's labor policy, we must give labor its rights. If we are truly convinced that our form of government is the best—and I for one am convinced that democracy is the only form of government worthy of man—we must stop being afraid of having the government assume increasing responsibilities. We must stop being lenient toward graft, corruption and inefficiency and must consider them as they really are, namely, treason, a betrayal of democracy. Democracy is challenged today. It can and will survive, but this will require not only that we win the war but that we have the intelligence to make the necessary social and economic adjustments.

We abhor Hitler's regimentation of all cultural activities. The researcher and the artist feel free in this country. Nobody prescribes what they have to do. But are they truly free? Is there not a regimentation of a more subtle kind, by the exigencies of the market? Can the poet or the painter make a living if he does not conform with the taste of the propertied class? In other words have we created the conditions for culture, in city and country? Are we paying adequate salaries to our teachers and researchers?

Every great crisis that interrupts the routine of our life calls for self-examination. If we do not evade the issues but approach them sincerely and courageously, we shall emerge from this great crisis stronger, not only economically, but also culturally.

We are told that eighteen workers are needed in the rear to supply one man in the fighting line. I think that more than eighteen are needed. Needed are also the researcher, the scientist and the scholar, the teacher, the poet and the artist, all the cultural workers. Their labor will determine to a large extent whether the soldier's victory will be lost, or whether it shall become a gain to the nation and the beginning of a better world.

# CHANGES IN PUBLIC ATTITUDES TOWARD MEDICINE: HISTORICAL ASPECTS*

ALFRED E. COHN

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The task which I have undertaken of presenting this particular aspect of the history of medical practice I have found to be incredibly difficult. The history is long—as long as there is any writing at all. It is very varied, going through all the conceptual relations known to the history of medicine. The search for the succession of practices leads first, all about the basin of the Eastern Mediterranean and later, to the North Atlantic ocean. This history is not the history of medicine only—of medicines and of a knowledge of diseases, but directs attention to the fundamental beliefs of successive generations of men concerning their place in nature, their relation to deity and destiny, as well as to their conception of the nature of diseases. It seems not to be true that, having caught hold of one end of a thread, this can be traced through concentric circles of a labyrinth until the center is reached. There appears to be no such single, continuous thread. There appear to be, even in the limited portion of Mediterranean and Atlantic geography not one thread, but several. The thread has been broken—once when the high Egyptian culture of the Ebers papyrus (B. C. 1560) fell into retrogression; again when Greco-Roman medicine lost its sense of objective reality to give place to medieval supernaturalism; and again whenever empiricism gave way to anti-intellectualism. For, if diseases are part of the natural order, what is meant by any society oriented naturalistically toward natural phenomena, is an attempt at understanding diseases, as if they were part of that natural order. Diseases, in this sense, are natural phenomena and are analyzable, therefore, as are other natural phenomena. Reason and the external physical world must constantly be at grips with each other. The effort must constantly be made to discover whether in the light of reason, the natural system works. Actually, so far as therapeutics

* Address presented to The New York Society for Medical History, April 3, 1941. Squibb Hall, 745 Fifth Avenue, New York.

go, mankind waited until late in the 17th century to discover, in the application of a remedial agent, a test of "does it work," in the statistical method. Therapeutics is not, of course, the only one of the concerns of medical critics but it is, as we shall see, dominant so far as the public attitude to medical practice is concerned. And rightly. For the public need care less about what practitioners think than whether what they think, works well for them.

I may say at once, I shall not discuss economic problems affecting the lives, individual or corporate, of physicians. I have even less competence in that domain than in this one, in the realm of ideas, which I have been foolhardy enough to undertake to discuss.

But besides the level of general culture of a society and the popular conceptions current of the nature of diseases, an insight into the total situation can be gained from which an understanding can be inferred, of the form of education offered to persons intending to engage in the practice of medicine. I say "total situation" meaning by that term that a society not hard-headed in one or several directions, is unlikely to be so in others. Whatever the central theme of any society, the expectation is, that it will push vigorously its conceptions to make the complexion of its public life, of a piece. That would be true of the Greeks in the 5th century or the Romans in the 2nd century, or medieval Europe in the 13th century, or modern Europe in the mid-19th century. It is not without surprise that in a major movement, it was only in the 1000 years, between the flowering of Greek hard-headedness and the Renaissance, that life was oriented to considerations of spiritual salvation, to salvation of the soul, divorced predominantly from the practical concerns of this planet. At other times the search has lain in regions in which men sought their good in that interaction between reason and the physical world to which I have referred.

There is a relation between discovery and the stimulation this provides of the public imagination. When so much is going on that seems to do good to the public, they receiving information of the trend in the public press, a new desire to participate is developed. But even more, every physician learns of patients who prefer the buoyancy of faith, to the ministrations, no matter how "scientific," of accredited physicians. Such patients prefer faith healers, Christian

Scientists, any one who aids them on their psychological side, to physicians who watch, but can confessedly do nothing, or little. When the choice occurs between psychological help and mechanistic impotence, a decision on the part of patients is not difficult. Naturally the division of the whole area between these two possibilities is becoming less unequal, and the hope is that mechanism, even a knowledge of psychological mechanism, will occupy ever greater sectors. The shift actually is taking place. The common man actually is beginning to believe that medicine practiced by scientifically trained physicians has value for him. His confidence is returning in certain spheres, but not where specialism puts in its disconcerting head. There disruptive forces clearly are at work.

If the subject of these remarks concerns attitudes towards medicine what there is in this situation that affects the public requires exactly to be defined. Ailment in human beings, to leave the wider problems of the rest of the animal and the plant world out of account, is the core of the business. Because men are afflicted before birth, in youth, and finally and perhaps most grievously in old age, an attitude toward ailment is inescapable. No historian of medicine fails to begin his account of the course of medical evolution by speculating on what assumptions men made before record keeping was practiced, about this situation. The assumption is always made, no doubt correctly, that men sought causes for the occurrence of their ailments. And in seeking causes, they sought also remedies. The scene was set for healers of some—as we shall see, of several—sorts. In short, whatever theories are propounded to account for the fact that men began to take cognizance of the existence of affliction by disease and whatever the facts were concerning the way they organized their resistance to malady, a means was established to defend them against their injuries.

Now the means they discovered lie too far back in the history of human society to make it at all clear how the attempt at defense actually began. When records of which there is current knowledge began to be made, it is clear that a single system had not been developed—not concerning mechanisms of affliction, not concerning the techniques of remedy, not concerning the personnel nor its status that existed to care for this situation. Diseases, therapeutics, healers,

belong to no scheme of insights or of things that can be identified as organized. Healers necessarily had several functions depending on the variety of ailment. There must have been many varieties just as there are now. And there is evidence that there were specialists—for infections, no doubt, for the removal of stones, for the setting of bones. Care must have been taken of pregnant women and certainly of parturition. And care must have been taken of the insane or the partially insane. Directly the notion prevailed that against an ailment there existed a remedy, the way must have lain open to inquire would the remedy work, was a remedy needed, how long would healing take? Prognosis in short was born. To this end, signs, portents, symptoms, experience must have counted. That some did, is known from available, relevant evidence.

Therapy conceivably depends on causes. It does now, to some extent. It did not always; for a long period that was the view. If diseases were punishment for sin by deities and consisted of the invasion of the body by deities or demons or spirits, these were the things to get rid of, to exorcise. Somebody had to attend to the exorcism—the patient and some one else, one or both. The background in thought constituted the suggestion for non-mechanistic interference and the organization of a non-rational therapeutic system. Such plans were consistent with one form of ailment—not with stones or bones or delivery. The Ebers papyrus mentions physicians, priests, and exorcists. There should be no astonishment that these healers existed side by side. They do, even in our day.

The Greeks seem to have discovered that diseases were natural processes—something akin to physiology. It was Professor Whitehead who said something to the effect that there is no first-rate idea in the modern world but that it had its origin in ancient Greece. This idea is one of them. But in Greece as in Babylonia and in Egypt, there ran parallel types of healers.

Making reference to situations and to practices several thousand years old, is not becoming too antiquarian. In the historical record, 3000 years is telescoped into something closely contemporaneous. What was thought and done then, was not so different from what, now. In intellectual capability the difference between the Greeks and us is not easily discernible.

Irrespective of causes, or perhaps if one but knew, in direct relation to some causes, patients resorted to different types of persons, or to different types of establishments. Patients with stones and fractures would probably not flock to temples, oracles, or spas. But patients possessed, and this word suggests clearly demoniac or animistic conceptions, would—and so would people with forms of disease that failed to yield to simple remedies, known locally, and so would those whose ailments were regarded as visitations of gods, saints, or demons—diseases regarded as, in some way, connected with sin, retribution, and religion. For if sin or transgression, atonement, appeasement should be sought and perhaps granted, according to the religious (not, in this case, the social) contract. And the great healers would turn out to be those who exercised greatest powers in a religious hierarchy—Asklepios or Christ.

For the purpose of this discourse it is not necessary to go further in attempting to look meticulously into all the ramifications of this situation. What is essential is that there were appropriatenesses in what patients did—that the channels which patients travelled were the proper ones for the kind of illness which they manifested.

Men met the challenge of diseases in different ways, depending on the state of their intellectual sophistication. Without an inductive system no matter how primitive, an accurate analysis of the relation of cause and effect was not possible. Since cures depend on causes and since the causes of diseases, especially certain diseases were believed to depend on deity or more especially on deities, each concerned with a special form of disease, it is not remarkable that the care of diseased persons was associated closely with the practice of religion and was placed in the hands of priests. It would perhaps be more accurate to say that priests arrogated to themselves this function of social activity. Whatever the priests knew they kept to themselves; they formed a cult. That was the case in Greece among the temple priests. There have been times even in the Christian dispensation when church and the clergy fought lay practitioners for attempting to assume this burden.

It is unnecessary, in fact it is impossible, to enter fully into a description of the changing conditions of practice in successive periods these 2500 years or so past. It is enough to record briefly:

1. The Egyptian and Greek situation
2. The condition in the Middle Ages
3. The way of things in the modern world

Leaving personalities out of account and by laying no undue stress on details of difference, the broad outlines emerge clearly. There can be little value anyway in insistence on details for there is in any case a serious lack of them.

As is usual in descriptions of the origin of institutions, whether in Mesopotamia, Egypt, Crete and Greece, definiteness is secured by assigning mythological persons to assume roles in dramatic settings, partly human, partly divine. Gods and goddesses, men and women, move across a mythological stage. When the historical play actually begins, they have accomplished their parts. In the Trojan war, Homer introduces physicians and surgeons who perform their functions and who respond to the needs of war, as if a tradition of learning and of practice were already well established. Certain of the ways of healing had been blocked out—in surgery, the care of fractures, dislocations and stone; in medicine, the use of drugs, inunctions. purgations. This is lay, not priestly medicine. Similar procedures were understood also in Egypt. Both in Egypt and in Greece there are records—in Egypt especially the Smith and Ebers papyri which make clear what diseases were recognized, what remedies were available. In Greece there is a succession of information, in Homer, in the fragments of the temples and the schools, in the Hippocratic writings. Later, there are the writings of Celsus, Oribasius, Paulus Aegineta. Alongside temple medicine, rational, empirical medicine developed. That is the medicine later recognized as Hippocratic. The practitioners were craftsmen and seem to have been taught *mutatis mutandis* much as physicians are taught now—they observed, they classified, they reconstructed the natural history of diseases. They made efforts at developing useful drugs.

Lay medicine seems to have been well established in the Greek mainland. There were full time physicians employed by larger communities who received fees but who beside were permitted to charge fees. In smaller towns physicians picked up what practice they could selling their knowledge as other vendors sold their commodities. Since there was no method of licensing physicians, who-

ever wished to engage in practice and to treat patients for fees could do so. These men were professionals who, as Sigerist has pointed out, had as one of their chief recommendations the reputation for success which they had acquired. Reputation was capital. All of this seems, but is not certain, to have antedated the establishment of religious medicine. How this arose is obscure. Gods and goddesses overlooked the care of patients suffering from different classes of diseases. For them, in selected regions, shrines were built in appropriate places, selected with regard to advantageousness of climate and of beauty of location. Sometimes there were springs of mineral waters. When such shrines became popular, their wealth increased until great establishments were built, as at Epidauros which began to flourish before the 5th century. In the course of time there was built a fine temple to Asklepios, a theater, gymnasia, stadia and a hippodrome. There were dormitories for patients, just as at Saratoga, or Baden Baden or Bath or Vichy. Pausanias described his visit to Epidauros in the 2nd century, A. D. This spa has a continuous history therefore for a period not less than 600 years, drawing patients from far and wide. Since little is known affirmatively of the beginnings both of lay and temple medicine in Greece, there is no need now to date one in terms of the other. What is reasonably certain is, that lay medicine was practiced alongside temple medicine.

It seems possible to distinguish between what the priests did, and what the physicians. Physicians took care of the common, acute ailments and injuries; the priests, of patients suffering from chronic diseases which were treated at the temple establishments with exercises, baths and inunctions. More important though, one may guess, were sterility in man, but especially in women, neuroses, psychoses and obscure ailments like anemias. The priests, one may be certain, wrapped about what they did in mystery, for which rituals existed of various degrees of elaborateness. Purification of mind, but especially of the body, played its role. Dreams were interpreted, hypnotic states were induced. The healing dream played obviously an important part in cures. When Pausanias visited Epidauros, he was shown votive tablets recording the names of patients and the diseases of which they were cured, the method of treatment that was used. The inscriptions, in order to make sense, require skill in

interpretation; in their inscribed form they appear, sometimes, utterly incomprehensible. On the whole cures in the temples take on a miraculous complexion, as in the fantastic story of Aristagora of Troixenes.

For the training of priests there were undoubtedly temple schools in which the mysteries were handed on, generation after generation, as is the custom in esoteric cults.

Parallel with the temple spas and the temple schools, were the lay schools of Cyrene, Rhodes, Cnidos and Cos. That Cos was not a temple school, is suggested by the fact that in the whole Hippocratic Corpus, there is no mention of a miraculous cure. What the temper and the nature of instruction in lay schools was appears from Hippocratic writings. Observations, descriptions, inference, the method of experiment, a form of rude statistics, underlay their practice. Out of this grew theories of physiology—crises, humors. It was sound system, directly comparable to what, in natural history, Aristotle was doing in the 4th century. What went on in the Greek lay schools, remained the basis of thought until the Renaissance.

What the Greek philosophic schools, what Alexandria, and Roman medicine added, were some adventures in anatomy and in physiology with which the names of Herophilus and of Erasistratus (c. 310-250 B. C.), of Galen and other Greco-Roman physicians, are prominently connected. Actually it is not clear that after the Greek Foundations there is significant development in the comprehension of diseases such as would influence what patients could expect in the way of cures, until the time of the Renaissance. In Rome there was a time, in the empire, when the social position of physicians seems to have been not unsatisfactory; Julius Caesar made them citizens in 46 B. C.; medical schools were founded in Marseilles, Lyon, Saragossa, Antioch. But whatever the power of rational thought, it had neither the strength nor the originality to maintain the spark of reason against increasing popular reliance on on-rushing competitors from the East which brought into Rome beliefs and cults as irrational as was the temple medicine in Greece. It was again a situation in which mystical medicine, temple medicine, flourished side by side with the medicine of the rational schools.

And now with the coming of the Christian era, those forces were at

work which sapped the strength of the social and intellectual life of the empire. Wars, pestilence, poverty, the disinherited, the rising masses of the underprivileged, the hard and lower standards of living, epidemics, all these combined to render men careless of what had been the opportunities and the rewards of the rich and powerful in the preceding centuries. The cultivation of health so dear to the Greeks, the cultivation of luxurious living, apparently so indispensable to the privileged Romans, were no longer ways of life to be envied. For common men, theirs was not the way along which hope was to be found. New motives became apparent. Old motives received new emphasis. Insistence on interdependence is one. Professor Sigerist regards the brotherhood motive in primitive Christianity as determining—in the sense that men are responsible for one another, in sickness and in health, that Christians form a vast family, the members of which assume responsibility for each. This motive accounts for the fact that communities as wholes, have throughout this era charged themselves in theory at least, with the public care of the unfortunate. This motive accounts for the establishment and maintenance of hospitals and other institutions for the care of the sick. There can be little doubt that the recognition of communal responsibility constitutes a turning point in the attitude of the public.

But there is another aspect of the matter, for which the acceptance of Christianity by the Mediterranean world is also responsible. The general social and economic conditions which were prevalent in the centuries before and after the beginning of this era, made it desirable to pin the hopes of the vast majority of people on something other than the possibility of material well being. That there was no comfort in this world, that so far as its goods went, most men were underprivileged, turned attention away from that chance of betterment, which depended on goods and things. They were ready to be taught to look for religious equivalents of salvation—salvation for the spirit instead of the gratification of the flesh. The new way, which despised the body but sought instead salvation for the soul, found in the Roman proletariate a congenial soil. The world of rational arrangements, the world of rational thinking, the world of rational medicine, was at an end. Privilege meant advantage of one

man over another, because of wealth or position. What could be bought was for the advantage of the body. In the new dispensation, privilege was cast out and in its place came that feeling for man, for his intrinsic worth. A theory was adopted which made men brothers, which made them mutually dependent, which made salvation a business of the soul, and neglect of the body, a virtue. These new values destroyed the values of the ancient world. For Christian society, wealth and the advantages of wealth disappeared. For the new poor, lay physicians and lay practice had accordingly no meaning. The Greek and Roman systems for the support of medical practice disappeared. Since the care of illness could no longer be a private concern, it became a communal enterprise.

In this context, there could be no other outcome than the substitution of irrationality for rationality—and to make of that subtitution, a thorough-going reconstruction of the tenets which applied to the whole of social organization. This substitution went so far that in the 2nd century A. D., Christian students of Galen were excommunicated for devoting their time to the study of pagan medicine. Later, in the 12th century, when the medieval church was in the heyday of its power, the anti-intellectual tendency was strong enough, to forbid Benedictine friars from cultivating the study of medicine—the Benedictines especially having held learning in some sort of esteem. The practice of the Benedictines did in fact keep alive something of the rational Greek tradition. There is much evidence that, instead of having disappeared completely, as is so often assumed, that strain which began to develop again powerfully in the 14th and 15th centuries, runs as a faint trickle through medieval thought. Faint, because its significance was scarcely made much of. There are, in fact, modern scholars for whom the copying of manuscripts has made endless trouble through the corrupt copying of the ancient texts by monks who undertook this labor, or to whom it was assigned, not for the love of learning, but as punishment in the expiation of sin.

The motives underlying the care of the sick in the medieval church may have been different from those which activated the priests in Egyptian temple medicine. The motive of charity, later exemplified by St. Francis, may have been enough. The fact seems to be,

that no other group of individuals was trained or had the leisure to undertake this service. Clerics did in fact take on this function. In time there came to be established monastic medicine. At all events, throughout the early Middle Ages, religious orders served these functions—the Templars, the Knights of St. John, and later, more especially, the Benedictines. At the zenith of their concern with sickness they taught at widely separated stations—at Montecassino, at Oxford, at Cambridge, at Tours, at Fulda and at St. Gall.

The care of the sick, obviously was a time consuming business. There came to be criticism of this activity on two counts; the brothers devoted too much of their time away from the monasteries; they were developing a degree of rationality, of scholarship, at variance with the best interests of the ecclesiastical establishment.

But before the end, long before the end of this movement, seed was sown which, when it began properly to flourish, flowered into a plant of such strength and vigor, that it still nourishes the current system. The Benedictines from Montecassino in the 7th century founded a hospital, at the salubrious site of Salerno. There the sick began to congregate. Later, in the 10th century, the school of Salerno was founded. Later still Frederic II promulgated rules for general and special education which may still be regarded with admiration and may still serve as guides to conduct. Later still, faculties of medicine, imitative of the school of Salerno began to flourish everywhere in Western Europe.

In a sense what went on at the school of Salerno is shrouded in mystery. In another, enough is known so that it is possible for the learned to be learned about it. Actually it serves well as a symbol. It was a focal point for the meeting of the persons and ideas beginning again to be abroad. There was a mixture of irrational and rational, but more especially a breaking through of the rational. Egyptians, Constantinus Africanus, Jews, Saracens, Northern Europeans, foregathered—Germans, it was the day of Hohenstaufens and Italians. Greek, Hebrew and Arabic were understood. In Sicily, closely adjoining, the three languages are said to have been used simultaneously like their successor languages in New York. And here also for the first time in the Christian learned world, women began to play a role. It makes no difference whether Trotula existed

—that there should be debate about that possibility, is enough to establish the fact that the tight structure of the social web was loosening.

And out of all this came a book, in many versions, in many languages in countless editions (500, L. Choulant). The *Regimen Sanitatis* attained fame and captured the hygienic imagination of Europe, as had Pliny's natural history, its intellect. Sir John Harington, responsible for the greatest of European revolutions through the invention of the water closet, translated this work (1607). It taught many things—as to the maintenance of health, as to household remedies, as to sensible daily behavior. Knowledge of this book must have travelled far and wide. It must have been a powerful lever in elevating the minds of people from the bog of ignorance to the upper air of roaming inquiry.

That a book like this should have been produced is indicative merely of the temper of a time. This book was not its only sign. Albertus Magnus, far away at Cologne, wrote his natural history. The mere mention of these names, of Arnald of Villanova, of Mondino, are enough to make clear in what directions the minds of common men were stirring. The exclusive sway of the religions was over; there was room for new things.

In the later Middle Ages, when laymen again were attracted to the profession of medicine, it was again possible to render services for pay. The church employed many, as had also men in the upper levels of the social hierarchy. They employed physicians for public services, and in the interests of their personal care.

By the end of the 15th century, a new dispensation was firmly established—there were well organized schools; there were rules which governed medical practice; there were penalties for illegal practices; for practitioners without licenses. Practice, finally, attempted to tear away from the faculties of the cathedral and university schools and fell increasingly in the hands of the laity.

But the irrational strains, never lost in Greek and Roman temple medicine, continued to flourish under the auspices of the medieval church. Gods became Saints. It was the saints that the afflicted appealed to, for protection and relief. It was saints who presided over shrines and spas and baths. Demons and spirits continued to possess

the mentally sick, and clerics, witches and sorcerers continued to exorcise them. In many cases as a last resort help was sought in the laying on of hands—miraculous cures were reported, owing to the royal touch of an anointed king. The appeal of irrational, religious, temple medicine was still powerful. The persons and the auspices and the system were different, but the thing in itself was still the same. The need for help was as imperative as ever, and that help could not be forthcoming when reason had made advances so slight as to offer scant comfort to those in acute suffering.

As the centuries wore on and the Renaissance dawned in the 14th and 15th centuries, a rearrangement in emphasis among the various medical strains had taken place. The interests of people in Western Europe were drawn again toward interest in this world. The crusades stirred the crystalline sediment of catholic culture. Looking outward instead of exclusively inward, dissolved the crystals and rendered fluid what had been precipitated. The westward migration of Greek scholars and the northward migration of their Arabic and Hebrew colleagues served to stir the stagnant pools. That this evolution should have taken place is in the nature of things, which, like it or not, continuously change. The world obtruded itself very gradually upon consciousness—it began again to be reckoned with. These, the crusades, the migrations, the needs of religion itself, chanced merely to have been the instruments of that change. Finally, the Moslems, having shut off Europe from Eastern Asia by their impenetrable crescent running through Transjordania, Egypt and North Africa, that is to say from the rest of the remembered world, stimulated the maritime discoveries of the 15th and 16th centuries. These processes and adventures together, succeeded in opening the minds of men to inquiry—opened them inescapably, even if, to many thoughtful persons, reluctantly. The materials for a new revolution were now forged.

In the history of medicine heroes too have their uses. And they serve as symbols as well. Philippus Aureolus Theophrastus Bombastus Paracelsus von Hohenheim (1493-1541) would serve as one, even without his high-sounding name. His name is like a clarion. It is onomatopoetic. It announces a new time; it boasts as is proper, when one is uncertain of the boast. All the ancient strains of medi-

cal thought and practice are focussed in him. But there is beside, enough heraldry of the time to come. He gives one the self-confident feeling of spring. He spoke his own language; people understood him. He had the assurance of one who was willing to stand alone. Within himself he combined both rational and irrational motives. Feeling his strength, alive to events and interests which had been suppressed, he cut a wide swathe in the world of his day. He doubted, he enquired, he experimented. He taught people to throw away crutches, he breathed faith in himself and in reason. He was the occasion to remind people that they must look afresh, that their teachers were ignorant, that they must search for themselves. That symbolizes the self-reliance of the dawn. Whatever was outmoded and useless that Paracelsus and his time inherited from the past they were ready to discard—they were ready for the forward march. He is a brave symbol—fit to stand beside Leonardo and Galilei.

One would have thought that after Paracelsus, witches, religious healing, pilgrimages to holy healing places, magic, belief in improbable or impossible would disappear. But they did not disappear nor did therapeutics become established as a well thought out enterprise. Everybody was not impressed with Descartes' "Discourse on Method"—even many of those who knew of it remained uninfluenced by its plain teaching.

But the complexion of things did gradually change. The universities planted herb gardens—they tried out the efficacy of their extracts. The barbers became surgeons. Medical people began to observe diseases studiously, to assemble like cases. They began to draw inferences from their resemblances, for descriptions, for classification, for prognosis.

What the professors learned, the populace also soon began to know. They began to travel again in search of cures for diseases—not to the holy places, this time, not to the temples, but to the professors, to the university clinics—to Leyden, to Vienna.

After the motives of the Renaissance had been gaining momentum some two or three centuries, when travel became freer and speculation bolder, considerations that may be considered quite new entered upon the scene, considerations that had their origin in the very changes in life and thought and trade that were transforming

Europe and which reached, so far as direction is concerned, their full stride at the end of the 17th century in England. As is well known, populations in European countries, in western European countries, were still small—19,000,000 in France, 5,500,000 in England and Wales. With increase in the means of production, with expansion of markets for the sale of produce, populations not only had use, but increase in population became desirable, and the preservation of the small populations available became imperative.

There survived of course the old Christian notion of the mutual interdependence of men. Out of this grew the sense of humaneness and also the desirability of private and certainly public philanthropy in the expanded founding of hospitals. But in the 17th and 18th centuries new motives became dominant. More because men were valuable than because of brotherly love, inquiry began to be made into the conditions of living. How long did they live? Of what did they die? Could one, by gathering information about such matters, improve the state of affairs? Now enter upon the scene the names of authentic well known personages like Sir William Petty and other later actuaries, of Johann Peter Frank and of other men interested in the public health.

In the year of the Declaration of Independence, Johann Peter Frank, Court Physician to the Sovereign Bishop of Speyer, addressed a circular "Letter of Invitation to Scholars to Send the Decrees of Rulers and Legislators relating to Medical Polity" to him. This letter runs as follows:

Gentlemen,

That the preservation of the health of peoples and states and the multitude of regulations necessary for this purpose are of great importance will certainly not be doubted when it is realized that the inseparable accompaniment of true happiness, namely bodily health, while it runs many a risk of being neglected, also contributes largely to the increase of the common weal.

Rulers, being destined by nature to set an example, have at last recognized the importance of this matter and have therefore been establishing of late in various districts those famous public health boards whose special concern it is to eradicate anything that is injurious to the public well-being and to promote anything that tends to preserve and increase the health of the citizens.

Owing, however, to the wide range of the subject and to the fact that the policy is still much too new to have found general assent, many factors, and those certainly not the least important for improving the public health, have had to be ignored. A closer enquiry will make clear to educated persons the duty of investigating the generally overlooked influence of these neglected factors and of deciding in earnest which are suitable for this or that locality and people.

Frank enumerated roughly 17 different functions which his department of health should serve, but, being wise, he doubted whether he had exhausted the possibilities. He turned again to the Scholars:

To you, therefore, Gentlemen, I address my renewed requests and wishes, that you should deem it worth your while kindly to let me know of anything I seem not to have mentioned to you here which might be useful in elucidating this work devoted to humanity, especially any regulations relating to Medical Polity that you know from your experience have been applied with success or are to be applied either here or elsewhere. Please confer with me on these topics by friendly correspondence and, if there should come into your hands any writings worth consulting, lend them with the assurance that I will in each case gratefully and faithfully refund any expenses and, as far as possible, lest I should become a nuisance to any of my patrons, I will conscientiously observe any further conditions that may be imposed.

Enumeration is not a new method to be applied to affairs of State. But it is not an old method either. Recently the centenary of the publication of Quetelet's " Social physics " was celebrated. The importance of its publication in the view of many scholars becomes clear when it is recalled that in the Galton Laboratory at University College the copy of this book which was presented by Quetelet to Florence Nightingale, has been singled out to be placed side by side with the copy of the " Origin of Species " that Darwin presented to Francis Galton and with the copy of his Belfast address which Tyndall gave to Herbert Spencer. Indeed the conception that " Social physics " or, as we should say now, the statistical treatment of social affairs, can yield important insights goes back not even so far as the reign of Queen Elizabeth. That the conception is still young, emerges from the fact that this approach to understanding the structure of society and its social needs has won, and still is winning, its way slowly and painfully in important departments of communal life. Captain John Graunt's " Natural and political observa-

tions upon the bills of mortality" appeared in 1662. The first duly licensed edition of Sir William Petty's "Political Arithmetick" written in 1676-77 was published in 1690. And Edmund Halley's "An estimate of the degrees of the mortality of mankind drawn from curious tables of the births and funerals at the city of Breslaw, with an attempt to ascertain the price of annuities upon lives" appeared in 169⅔. How many persons remember that originally "statistics" meant a "description of States," though it has now become a dark and lugubrious science, devoted to what is called a "systematic compilation of instances for the inference of general truths." But though there has been a change in definition of the word "statistics," what has occurred, as Sarton points out, is merely a shift in meaning. Enumeration of occurrences is still, indeed it is becoming, an ever more indispensable method for guiding the affairs of citizens in the hands of competent administrators. "For Florence Nightingale, Quetelet was the hero as scientist." Between Graunt and Petty and Halley, and ourselves came the valiant Johann Peter Frank. He counted as important, number 16 among the enterprises of his department of health, "the question of the classification of diseases under quite simple heads and the faithful recording of the cause of death in each case. In this way," as he thought, "the nature of endemic diseases, i. e. those peculiar to a single region, will at length become clearer and, when the figures are compared with a more accurate computation of the annual number of births, the death rate will be apparent."

This matter of the public health, from then onward, has received greater and ever greater attention. If the problems that required solution were, at first, the problems centering in the prevalence of infectious diseases, that was owing to the great number of young persons affected and to their devastating destructiveness. When, after the successful exploitations that followed an understanding of the influence of bacteria on the occurrence of infectious diseases, the number of such cases diminished enormously, officers and investigators devoted to the care of the public health began to turn their attention to other forms of affliction which, after the conquest of the communicable diseases, demanded urgent attention. These are the so-called chronic diseases to be found both among young and old and the disabilities incident to old age.

But these are matters of now.

The great turnover came in the 16th century with the rise of liberalism. Men fought free of control by all dominant organizations when the method of life since called *laissez faire* was developed. The medical faculties which had grown up under the protection of the church attempted to retain their power through the regulation of practice. The errors which they made in the face of the new empirical medicine gave an opportunity to organizations like academies, and other learned societies, to carry on medical activities and medical organization outside the faculties. The struggle in Paris for the recognition of the discovery of the circulation of the blood, suggests in a concrete way the kind of struggle which the medical faculties carried on with current research. The church in this instance, as in others, was fighting a losing, rear-guard action. The powers of rationalism were becoming dominant. Novelty is, however, something like Pandora's box; when the lid is open there fly out unanticipated things. If it was impossible any longer to restrain the curiosity of men, the consequences were not always satisfactory and could not, as one looks back, have resulted otherwise than is now apparent. If men were free they could indulge their impulses, if they indulged their impulses, there arose competition, if there arose competition there arose iniquity, if there arose iniquity, society defended itself by regulation. And a further consequence of the effort on the part of society to secure what it wished and needed, is making in our day for re-orientation, and a new alignment in the technique of the practice of medicine.

All of this was taking place in the early years of the industrial revolution. In its wake, came overcrowding in towns and cities, wretched housing and general insanitary conditions for great masses of the workers and of the poor. Poverty, intemperance, industrial diseases became rampant. This was the situation which challenged philanthropists and governments. Humanitarians like Robert Owen and Edwin Chadwick, took active parts in attempting to relieve these conditions. The workers themselves fought for better working conditions through unions of their own. Their own reaction, under vigorous leadership, as that of Francis Place, went far toward accelerating the pace at which reforms and new services were instituted.

This movement became cumulative through the century until after the turn of the 20th when the government in Great Britain, under the guidance of Mr. Lloyd George, instituted sweeping reforms in the National Insurance Act, whereby authority was granted to collect money for public medical purposes from taxation. With this money, need for research and for the administration of the public health was satisfied. With the institution of an arrangement that provided for the panelling of physicians a great forward step was taken. At length the public has become conscious of its democratic right to treatment for its ailments. A new chapter has been opened which has assured men, through being cared for, of a greater measure of the enjoyment which was legitimately theirs. When governments charged themselves finally with regulation of those industries, occupation in which was attended by danger to the health of working men, a scheme for the full care of the public was in sight.

It is unnecessary to trace this development of public care for the health and the diseases of individuals further, in different countries, nor according to special means, in hospital care for diseases, in lying-in hospitals, in protection against contagious diseases for the whole public, nor in the elaborate insurance schemes to aid the middle classes and the poor in securing adequate medical care. The intention here is to do no more than to outline the direction of thought and action. That the people themselves are now aroused is manifest in their willingness for these purposes, in the democracies, to permit themselves to be taxed.

Side by side with the development of interest in the public health by the State and in industry there evolved another motive, the motive that issued subsequently in the democratic regard for the value of individual men. If men had value, they had it to better purpose if they could function completely, sound minds in sound bodies. It would be natural to find stress on such matters in the literature of democracy, in John Locke and in J. J. Rousseau.

What emerges from these reflections are generalizations, no matter how incorrect, but very different from those I should have written down had you not given me this opportunity of arranging what I had in mind and what I have since read in an orderly fashion. What I expected to find when I accepted this invitation to address

you, was a record in the course of which the attitude of populations changed toward medical knowledge and medical persons or practitioners. A longer perspective suggests that this has not been the case. Years in the calendar have not constituted horizontal boundaries separating differences in practice, except perhaps at the beginning of those centuries during which the Roman church set the intellectual and religious pace. The attitude of the peoples has always been the same—the need for help. It has been their attitude, the attitude of the whole of a society, which has decided what small or great shifts, the state of knowledge and feeling necessitated. What has not been understood, or perhaps it would be more nearly correct to say, what I have not understood, is that there have always been two strains in what roughly, very roughly, we call medicine. There has always been temple medicine—there has always been rational medicine. They have always existed side by side; they exist side by side now. The philosophy, the general beliefs of a society, dominates its behavior, literally forcing its major emphasis. A mystical, transcendental philosophy necessitates the view that relief is to be gained by irrational practices; a naturalistic philosophy that rational practice is the only possible adventure. This separation in emphasis is general and distinguishes whole eras. But whatever the intellectual, the philosophical climate, the two strains persist. There are three questions:

What in the way of belief shifts?
What diseases are involved?
How do the answers to these questions influence public behavior?

So much having become understood, it must be clear that there are times when temple medicine makes a more prominent appeal, times when rational medicine does, and that whichever is the case depends on the general level of contemporary culture. Where naturalists are in the ascendant, medicine will be rational. So far as diseases go, there is a clear and sharp division between categories—the less understood, the demoniac, the possessed, the mystical, sterility, impregnation, gestation, neurosis, insanity, all these complaints in the category of the inexplicable, of the mysterious, of the God-inflicted—

these fall to the priests, the medicine men, the temple healers. Fevers, stones, fractures, dislocations—these fall to rational practitioners, to lay physicians. With advance in learning and the accumulation of critical experience, the area of rational treatment becomes applicable to more and more situations—resort to temple medicine becomes less frequent. The hope of rational medicine is that ultimately, understanding will have acquired such power as to make temple medicine, so uncertain in its success, all but superfluous. Reason will have triumphed. People have been learning how to distinguish. They do not go to the temple for stone or fractures; they tend not to take the insane or the neurotic to the lay physician.

And does temple medicine persist in our time? Emphatically—Yes. The Emanuel movement, the Christian Science movement, the confessional, all are evidence that it does. It succeeds where reason has not yet had opportunity for thoroughgoing research. But that time is now upon us. The great contribution of Sigmund Freud consists in the effort to analyze what is going on in the minds of men, of collecting that experience, of attempting cures. There are tests of success, in cases which have been cured. Of these Lourdes, Saint Ann de Beaupré and Christian Science can exhibit many and so earn the gratitude of men. But psychoanalysis and its related efforts at mental healing differ from former comparable attempts in insisting upon the critical accumulation of evidence, upon classifying that evidence, and upon drawing rational deductions from it. In the realm of the mind, this is the first time an effort irrespective of the degree of its success has been made that lifts this dark corner of human suffering into the light where the play of reason becomes possible on the road to better understanding.

Where so much in mechanistic medicine has seemed so elusive, so withdrawn from the possibility of treatment on rational grounds, these recent attempts in psychological medicine give hope that success is not beyond the power of human intelligence. The strongest of Nature's citadels having been stormed successfully, there is hope that the end is in sight, that a better comprehension of the mechanism of abnormal behavior has been attained.

What is more difficult to acquire is knowledge of movement of thought on these subjects among the common people—how much

they have acquiesced in current practices—how much they have rebelled at arrangements which yielded unsatisfactory results. That there are those who have, we have evidence of in the sharp critical writings, widely scattered in time, of Aristophanes, of Molière, of George Bernard Shaw. Their remarks are straws in the wind of public opinion. Theirs is evidence that scepticism of several sorts has been current, intellectual and behavioristic.

If the present, as we are so often told, is to be understood in terms of experience, it is perhaps quite fair to inquire, how much what is going on under our very eyes can be used to illuminate the past. There can be no doubt that to appraise what we see is extraordinarily difficult. There are now, without doubt, clear evidences of social pressure at work to force advance in knowledge of diseases. What else can it mean, when great Foundations investigate the state of medical education, suggesting at the same time how this can be improved; when others aid county health boards in attempting to manage diseases in their localities; when men are stimulated by them to study classes of diseases, of insanity, of the blood vessels, of cancer; when under the stimulus of still others, a situation like that among the aged is investigated; when private philanthropists turn to supplying clean milk to save infants and children from intestinal infection. These are expressions of the fact that laymen, dissatisfied with the state of affairs, have sought and have found ways of bringing about improvement.

Naturally such social activity must not be divorced from what the reflections of a time suggest and make possible. They are part and parcel of it, no doubt. And yet, being done in the way in which it is, it is not chance, but deliberateness that initiates these performances. Any one who has occasion to read the incoming mail of any prominent institute for medical research will be struck with how much suggestion, some foolish, is furnished by laymen, deeply concerned with the general defects in knowledge and eager to help in remedying this situation.

Yes, the common man and his lay leaders are aroused and, in our day, care. Associations like the Cancer, the Tuberculosis, the Heart Association are evidence of the same solicitude.

And now, with this experience, is it possible to push back and to

try to illuminate the past? In the sense in which our own world can be known, that is possible only to the extent that the record of events is available. Unfortunately that record is meager. There is furthermore a difference between eagerness for making the most elementary provision for the comfort of oneself and one's neighbor and a corporate enterprise to extend the bounds of knowledge. If occasional Greek cities employed physicians to ease the ailments of their citizens there is little reason to think they were active in maintaining institutes for research. If a record of the performances at Cos or at the museum at Alexandria has come down to us where under private initiative or under government, systematic investigations at least of anatomy and physiology and surgery were fostered, it would be difficult or impossible to duplicate such experiences again until the close of the Middle Ages, at schools like Salerno as a forerunner of what was thought, tried and accomplished, beginning in the 16th century in the academies of the Italian city republics and in their successors in England, France and Germany.

What is striking is the evenness with which the whole front moved forward. The single case of Pasteur is perhaps a perfect illustration. A record of the movement of his mind among the subjects of crystallography, of isomerism, of specificity, of fermentation, of diseases of the vine, of silkworms, of the diseases of sheep, and of men—not episodic, but tightly and intimately concatinated. To cite his case is perhaps to cite the best one. But other illustrations leap to one's mind—Goethe, for example, or in our own time, Sir William Hardy and Sir Ernest Rutherford. If the point can be made in the cases of single minds, this but points to what is possible and no doubt the rule in societies of minds.

That evenness of the front, slight pseudopods perhaps excepted, has seemed on occasion not to have been illustrated in the case of advancing knowledge of diseases either by men directly interested or by social pressure. It is an interesting point, one about which one does not always take the same view. The question is, could the date of a given discovery have been advanced? What in the way of preliminary knowledge must have been available? Was there such knowledge? It takes much knowing to answer such questions. A slight test is a record of discoveries and inventions that go into the

manufacture of the internal combustion engines of aeroplanes. What would have been possible at Kitty Hawk had *every* resource then available been put freely at the disposal of the brothers Wright? Could the transcontinental machine have been built? It is an idle question to which there is an obvious answer.

Another test can be made in the case of so-called simultaneous discoveries. Lists of these have been compiled. The length of them is, in point of fact, impressive. What they demonstrate is that at many points, many men are pressing forward, searching meticulously for, in order to pierce, the weak place in Nature's secret armour. And they do often, at widely separated points, practically simultaneously. Take the situation at this moment, in cancer, in arterial hypertension, in Bright's disease—to mention only the most obvious of the challenges offered by diseases.

The point need not be further labored. It may be possible, no doubt it is possible, to push forward harder and faster. But it would be difficult to be certain whether there is energy available to this end.

But enough has been said to make the few points which this discourse seeks to advance. There is no need to categorize them for purposes of action. Action, not enough perhaps, not sufficiently varied, not always adequately imaginative, is nevertheless taking place. What is more important is to tear web from woof to understand better the fabric into which the strands which make for its texture are woven. Two or perhaps three have been found. They have a strange, natural relation to one another. They have, as elements, relations of interdependence governed by the deeper thought of successive periods of belief and speculation, but they remain still independent strands, though their strength varies. In our day we should be content to see the rational strand grow so strong as to make the irrational wholly dispensable. A turn in an opposite direction we should take as evidence of the loss of our civilization. This is the assignment of value; our successors may in fact reverse our estimates. Our history is a checkered and a shifting game.

# WHERE DID THE IDENTIFICATION OF THE PHILISTINE PLAGUE (I SAMUEL, 5 and 6) AS BUBONIC PLAGUE ORIGINATE?

OTTO NEUSTÄTTER

Until the appearance of the so-called Revised Version of the Bible in 1885, the violent plague with which the Philistines were smitten as a punishment for having captured the ark of the Lord in the victorious battle against the Israelites was defined officially as "emerods," an antiquated term for hemorrhoids.[1] It is needless to say that this denomination, from a medical standpoint, was anything but satisfactory.

The Revised Version, therefore, did away with this term and replaced it by the neutral, though not very satisfactory word, tumors. This expression is doubtlessly correct, if one takes it simply from a philological standpoint; but it makes no sense from a medical standpoint, in view of the fierce, contagious sickness with quick and high mortality as described in those chapters (I Samuel, 5 and 6). One city after another to which the ark was taken showed an outbreak of the disease; death and excruciating pain befell the people, and the cry of the cities went up to heaven. Tumors do not produce such symptoms.

The committee which edited the Revised Version apparently felt this inadequacy and tried to smooth it out in a marginal note which says: "or plague-boils; as read by the Jews emerods." So consideration was taken on the one hand of the medical ideas, on the other hand of the traditional explanation as it had been given for centuries in the Authorized Version edited in 1611 under the auspices of King James.

This diagnosis of bubonic plague found adherence and praise especially after the discovery of the connection between rodents and plague by Yersin and Kitasato in 1894. In the sixth chapter, to wit, mice are mentioned in connection with marring of the land. Golden

[1] According to Murray the word derives from the old French emeroyde used in the 13th century. It was spelled also emerodes, emrawntys, emerowdys, emeroyades, emerondis.

images of them were recommended by the priests to be offered as a propitiation of the irrate Jehovah. Mice and violent infective disease, what else could this be than real plague! A series of physicians jumped to this conclusion, and competent Bible commentators were more than pleased to accept it and to laud the foresight of that marginal note. Even in those remote times the interdependence of mice or rats—as the Hebrew word "achbar" is translated as well, especially by the French—was recognized, they opined, and the editors of the Revised Version had hit the mark with their statement about plague-boils, in advance of the bacteriological discovery.

I must defer the discussion of the question whether or not this diagnosis is correct. What I wish to trace here is where did the idea originate that the disease was bubonic plague. As is apparent from the fact that the Revised Version appeared in 1885—no official translation of the Bible until then even as much as hinted in this direction—it is not possible that its definition was influenced by the modern bacteriological and epidemiological discoveries. On the other hand, there must have been endeavors to explain the disease in the direction of the bubonic plague, and one should expect to find hints in the medical literature. The translation used by Catholics brought quite a different version. The Jews, as is evident from the above marginal remark, still cling to emerods; the German Protestant versions, following Luther, applied a nondescriptive expression. Among the physicians who occupied themselves with the question, none came to a clear concept of plague-boils. Some of them thought of quite different diseases, even of syphilis. In the times of the devastation of the Black Death and the London plague I could not find a hint in medical works that the Philistine plague might have been the same disease. Yet there must have been precursors. It would be interesting if one could secure the minutes of the considerations of the committee of the Revised Version, but I do not know whether they even exist. Clarke has given a concise description of the work of the committee for the Authorized Version.

The earliest determined advocacy of the diagnosis bubonic plague among Bible commentators is found with Thenius, who is credited to be the originator of modern Bible criticism. He considered this concept as the only satisfactory one and ridiculed contemporary authors

who could still cling to the idea of bloody flux or tumores ani as a pertinent definition.

Thenius preceded the adoption of the diagnosis in the Revised Version some fifty years; but it would be a mistake to believe that his idea was accepted broadly by the commentators who otherwise followed in his footsteps, and until the present it is only in the English Revised Version that his identification has found acceptance. The Catholic English versions have not followed suit, and even the German version as revised from the Lutheran text by the Protestant Bible Conference in Germany went no further than to change Luther's " secret disease " into " boils."

But how did Thenius come to his opinion? This question harassed me, but I must confess that I cannot give a definite answer as he has not given the slightest hint in his commentary on the Books of Samuel concerning the source of his conviction. The question is even more puzzling since the contemporary physicians had quite different opinions. Yet in all appreciation of the extraordinary sagacity of this scholar, it is not probable that he should have come to his conclusion without any medical suggestion. He speaks of his opinion as something quite obvious and incontestable.

It was only in the course of my systematic studies on the subject of the Philistine plague that I came across a medical source which I suspect has influenced Thenius who had a thorough knowledge of the earlier literature, although I cannot prove the connection.

The first remark in medical literature ascribing the character of bubonic plague to the pestilence of the Philistines which I found was in Pfeuffer's *History of the petechial typhus* (1831). It is hardly probable that this was the source from which a Bible commentator would have won his conviction. Although Pfeuffer is a contemporary of Thenius, such a work would scarcely have entered the horizon of a theological scholar, and even if it had done so, the absolutely divergent ideas of prominent contemporary medico-historians like Schlegel and Haeser would have taxed his convincingness.

Finally, in a work to which such a characteristic could scarcely be attributed, I found at the end of quite a lengthy discussion of the medical side of the question the diagnosis bubonic plague from whence, to my conviction, it must have spread into theological circles.

This work was the *Physica sacra* of J. J. Scheuchzer, doctor of medicine and professor of mathematics and physics in the Lyceum of Zurich, a man of wide interest in all natural sciences, but versed thoroughly in the knowledge of the Bible as well. His book first appeared in German in 1725. Afterwards it was published in Latin, in four or six folio volumes, with beautiful copperplates from which it was given the title *Kupferbibel* (Augsburg and Ulm, 1731-1735). Scheuchzer made the translation himself. In 1734 a French translation appeared in Amsterdam. The edition I had at my disposal was from 1773 (Augsburg and Ulm).

From these bibliographic facts alone it is evident that this was an extraordinary work of wide circulation. About our subject he writes:

> Here it must be our principal endeavor to investigate carefully the disease which the invincible God of the Israelites sent to punish the Philistines when they led about triumphantly and mockingly the ark of the Covenant taken in the battle. This disease is called "apholim." The same word is contained in the curse pronounced in Deuteronomy, 28, 27 where we read: The Lord will smite thee with the boil of Egypt and with the apholim and with the scab and with the itch whereof thou canst not be healed.

He then enters into the discussion about what this word can mean. He gives a historical review of the different ideas presented, and enlarges on the word Fygwarts or mariscae or hemorrhoids or güldene Ader. This diagnosis, he says, is accepted by most of the Jewish and Christian authorities. But he does not omit the other explanations given in the course of the centuries. He seems to incline to the opinion that this diagnosis is not devious, for he asserts that these Fygwarts are indeed very obnoxious, especially if they are inward ones. It may be, he says, that the apholim were of that particular kind, a conclusion which he drew from a version of verse 9 which, instead of speaking of outbreaking emerods or fygwarts, renders hidden or hiding emerods (a controversy of these differences would take us too far into exegetic discussions here). But it may be also that they were both inside and outside, covering the buttocks everywhere, as do the objectionable Eissen (furuncles) which one observes in that shameful venereal disease. From this remark the author seems to have thought also of syphilitic fygwarts, which seems to be confirmed by his quoting also a verse of Juvenal which ap-

parently had already been referred to by several of his predecessors in the exegesis of these chapters, viz.

Caduntur tumidae
Medico ridente mariscae.

So far we see Scheuchzer following the beaten path. But then, as a kind of afterthought, he brings his epoch-making remark:

I close my discussion of the Philistine disease with a further annotation: It is well known that the mariscae or fygwarts or golden veins can be endured for years and years without any detrimental consequences. With the Philistine disease, however, we find extreme deadliness connected. Therefore the conclusion must be drawn that still another pestilential disease of an acute character must have combined with the mariscae, or in other words, the apholim cannot have been fygwarts, but must have been buboes, i. e. plague-boils or carbuncles. I add to this the fact that the physicians have gained the impression that the patients who succumb to the plague do not show, as a rule, any or at least none but inconspicuous boils, so that they became convinced that the boils often contribute to the recovery; for those who remained alive and recovered, had suffered from great painful, burning swellings, an observation which, to my opinion, would explain verse 12 of chapter V which says: and those who died not were smitten with fygwarts or mariscae.

I therefore come to the conclusion that the disease which caused so many deaths among the Philistines was real plague.

This seems a very reasonable definition if one considers how little the conventional concept harmonized with the description of a terrific deadly epidemic. In itself it seems not so very surprising, if one considers that Scheuchzer lived at the time when the terrible plague of Marseilles had aroused the whole civilized world. He heard much about its ravages, and as Poliater (Archiater only a few months before his death in 1733) of Zurich he had to occupy himself thoroughly with its symptoms and its prophylaxis.[2] It, therefore, was rather obvious that the general symptoms described in Samuel's narrative should have impressed a man of his capability of observation as being nothing else than a description of this epidemic, all the more as the word apholim lends itself to the explanation of a swelling, a boil.

[2] By order he wrote in 1720 Λοιμογραφία *Massiliensis*, the plague of Marseilles, enlarged in the following year by an appendix, and in 1721 a translation of Astruc's *Dissertatio de peste provinciali*, in Latin and German.

What is surprising is that his opinion had so few followers. If authors who treated about the plague of Marseilles had no interest in the disease that befell the Philistines, this is understandable as far as they were engrossed in the contemporaneous calamity. But even if they introduced their treatises with historical remarks, as was the custom, they omitted mentioning the Philistines' disease: so Pye in his discourse on the Plague (1721), Bradley in his Plague of Marseilles (1721). Mead in his well known *Medica Sacra* that still appeared after 1749 in many new editions where one would expect to find this best described Biblical plague since he mentions other Biblical instances, is silent about it. And these were contemporaries of the same plague invasion of Europe. More astonishing still are the diagnoses produced by other authors of medical fame which are a clear proof that they either have not read Scheuchzer's remarks or not found them worth mentioning. And the most perplexing item in the history of his meritorious identification is that his opinion is not even quoted anywhere,[8] much less commented upon or appraised. While the odd theory of Lichtenstein is mentioned in nearly all the important commentaries, even in modern times, I have not found any hint to Scheuchzer's statement, except in Calmet's *Scripture Illustrated by means of Natural Science, in Botany, Geology, Geography, Natural History, Natural Philosophy, Utensils, etc.*, Charlestown 1814, conducted principally by the editor of Calmet's *Dictionary of the Holy Bible*. This big volume is an arrangement of dispersed annotations of Calmet of passages in the order in which they follow in the Bible and of an appendix to Calmet's *Great Dictionary of the Holy Bible* which appeared in Charlestown in 1813 edited under the direction of C. Taylor, giving the historical, critical, geographical and etymological comments of Calmet on the whole Bible.

Under I Samuel of the *Scripture Illustrated* is treated the question what the pestilence among the Philistines may have been. The opinion of the author who quotes ancient ideas is that perhaps it was a fistula ani or piles, a definition which however seems unsatisfactory to him, because many Philistines died of this visitation. Thereby the conjecture is made that this disease was then more violent than now,

[8] His compatriot Joh. Jac. Schmidt quotes him, but as one who favors the translation Feigwarzen.

or that it was accompanied by other disorders of a fatal nature: perhaps the state of the weather was inflammatory and ought to be taken into account; or perhaps an injudicious mode of treatment augmented the effects of the disease itself. We will not sit in judgment about these utterances of the learned Benedictine; they are no worse than those of the doctors of his time. What interests us here is that he mentions Scheuzer—the name is spelled thus, apparently by mistake of the editor or printer. " Scheuchzer says," he remarks, " that the boils were somewhat of the nature of pestilential buboes; they are of a critical nature for the patients who, when the buboes are small, seldom recover; but when they are large, they are, though extremely painful, salutary to the sufferer. This observation gives light, if I am not mistaken, on what is said, viz. that those who died not were stricken internally. I therefore determine to call this scourge by the name of plague."

Calmet apparently has read Scheuchzer, though the quotation is not quite correct. Scheuchzer did not say that they were stricken internally; quite the contrary, he spoke of great painful burning swellings, i. e. visible outside afflictions. To explain the mistake of the theologian, we would have to enter into an etymological sidetrack that puzzled the commentators for centuries. This, as pointed out, is the only mention I found of Scheuchzer's opinion in the literature of 200 years. Even those who quote Calmet do not refer to his citation of the Zurich Stadtarzt.

And the perplexing neglect of the merit of this modest yet prominent scholar, whose idea gained the palm with the committee for the Revised Version, and with nearly all the modern physicians who occupied themselves with the question, goes even farther. Scheuchzer's name is not inserted in the *Allgemeine Deutsche Biographie*, nor in its supplement; it is missing in the great French *Biographie Générale*.

Finally I found a note about him in the *Dictionnaire Historique, Critique et Bibliographique*, a much smaller work than the *Biographie Générale*. It gives more facts than the short and nearly identical notes in Meyer's and Brockhaus' *Lexikon*, in which it is said that he described the giant salamander named after him (Andrias Sch.) as homo diluvii testis and in which he is called the founder of physical

geography. I take from there a few remarks which show that Scheuchzer should have found a place in the above-mentioned big biographical works. He was born in Zurich in 1672 and died there in 1733. Peter the Great of Russia—who was born in the same year—tried to secure his services for Petersburg, but the generosity of the Zurich Town-Council made him refuse the proposition. He became professor of medicine, mathematics and physics at the Lyceum of Zurich and died as Head City Physician. His principal work (according to this source) was the *Physica Sacra*. But his accomplishments were by no means limited to this field. He published a work of nine volumes, *Itinera Alpina*, in which he gave a description richly adorned by illustrations of all that the Alps offer of interest to the naturalist observer (1713). Forerunners were *Historiae Helveticae Naturalis Prolegomena* (1700), *Piscium Querelae et Vindiciae* (1708), *Herbarium Diluvianum* (1709, second edition Leyden 1793). His palaeontologic studies brought later his *Museum Diluvianum* and his *Homo Diluvii Testis* (1726) with the description of his important, but wrongly interpreted discovery. In 1740 appeared, in Danzig, his *Sciagraphia Lithologica seu Lapidum Figuratorum Nomenclatura*. Shortly before his death he published a practical outcome of his geological studies, a work on the mineral waters of Switzerland. The width of his interests is apparent from the fact that from 1701 to 1714 he edited a Journal of Swiss Literature.

A more adequate evaluation of the merits and personality of our author I then found in two works to which my attention was called by Prof. Sigerist who kindly procured them for me from his private library. The older one *Biographien zur Kulturgeschichte in der Schweiz* by the Professor of Astronomy in Zurich, Rudolf Wolf (Zurich, 1858) contains a biography of 48 pages with numerous bibliographical and personal notes.

The other one *Historisch-Biographisches Lexikon der Schweiz*, Neuenburg, 1931, brings concise dates about him as a prominent personality in the frame of the genealogical description of his family which is still in existence. It points to the *Physica Sacra* as one of the outstanding of his many works, calls him the father of barometric measurements of altitudes and of the physical geography of

high mountains, and the creator of palaeontology, referring also to Linnaeus' naming a genus of the family of the Alismaceae " Scheuchzeria," and to Scheuchzer's membership in numerous foreign scientific societies.

From both sources it is evident that Scheuchzer was a man of unending and manifold craving for knowledge in the lines of natural history as well as other subjects (e. g. the history of Switzerland), and an author of an amazing productivity. Besides the printed works, Vögelin's *Geschichte der Züricher Stadtbibliothek* mentions about 250 mostly folio volumes, written in longhand, in its files and another 90 volumes also in longhand in the archives of the Naturforschende Gesellschaft. Most of his works had the trend of popular enlightenment. In the preface of his widely read *Systema Physicum* he emphasizes his intention not to write affectedly, but plainly and legibly for everybody. Therefore he wrote mostly in German about questions of natural phenomena such as geography, climate, products of the soil, fauna, flora and minerals of Switzerland, weather, shooting stars, eclipses, predominant air currents and diseases, crystal formations, avalanches, fossils, earthquakes; but he published works in Latin as well. He edited for several years at his own expense a weekly *Seltsame Naturgeschichten des Schweizerlandes* (1706-8, 1716-1718, reprinted 1746 and 1752). He had a quite modern statistical mind and instigated " polls " to attract attention to natural phenomena and to collect facts. In 1697 he sent out a *Charta invitatoria, questionibus, quae Historiam Helvetii Naturalem concernunt, praefixa,* in Latin and German which contained about 200 questions concerning the geographic, climatic and physical peculiarities of his country. He was the most active member and recording secretary of the " Society of the Well Meaning " where similar questions were treated, e. g. where storks and swallows hibernate, whether atheism must needs lead to corruption of morals—but also curious questions such as: why are negroes black? are comets forebodes of divine punishments or changes in the world's status? whether Christ changed water at Canaan into red or white wine? where did Christ secure clothing after the Resurrection? whether Christian magistrates could, with a good conscience, permit public comedies, tight-rope walking, etc.? whether and how the devil could copulate with a

woman?—A man of the concrete frame of mind as Scheuchzer no doubt was much needed in this Society.

His occupation with physical phenomena led to several discoveries where he had precedence. It was he who first attracted the attention to remains of former geological periods. His explanations in the beginning were very queer; he attributed the fossils to the development of invisible seeds of fish, frogs, lizards, in the bowels of the earth where they were hatched as in a womb; but influenced by Woodward whose publication on natural history of the earth (1695) he translated into Latin (1704), he did not hesitate to confess his mistake and then ascribed the fossils to the Deluge. A most interesting outcome of his paleontological studies was the recommendation of peat and coal as heating materials, a suggestion which owing to the decrease of wood and its rising price already in 1708 and 1709 led to the exploitation of the peat deposits at Käpfach, Rüti, and Rüschlikon. Greatest sensation was caused by his discovery in 1726 in the Oeningen quarry of skeleton parts which he ascribed to a man who had perished in the Deluge. Though his identification proved wrong, it was a great discovery. His name was at this time well known in the scientific world, so that in 1712 he was asked by Peter the Great to become his Physician in Ordinary. The offer finally was rejected, although in his native city they could only raise his salary by 100 florins, 12 mütt of rye and 12 kilderkins of wine.

His loyalty was so much more meritorious, as he earned a lot of hostilities and chicaneries from the Chorherren Stift, his employing board. His whole tendency, as is evident, must have aroused the distrust of the theologians, who though Protestants, as Pastor Vögelin in his *Schweizer Geschichte* (2, 376) stated, "were as intolerant as the Catholics. A religious melancholy found sin in the most harmless things. The awe of Hell and the devil were regarded as more powerful than the love of the Lord. New concepts were banned, excommunications the order of the day, the study of natural history and science condemned. Swammerdam's discovery of the spermatic animalcules was regarded as an indecency. Now Scheuchzer was of a profoundly religious nature. The might and beauty of the Creation, he found in the smallest thing. He scorned those who would imagine that a house or a watch could be created without a

planning head behind it, and the grandeur of the world without a superior being. He took titles for his books that show his convictions such as: *Deum ex terrae structura demonstratum* (1715), *Deum ex materia demonstratum* (1721), and in his preface to the *Physica Sacra* he could state that " his endeavor to unite in his lectures with the beauty and art of nature the venerable holiness of the Revelation led himself and his pupils, among which men of age and importance were the majority, to worthy admiration of God's works and to a still greater homage for the Almighty, All-knowing and All-gracious Creator and to most humble devotion." But he had uttered among other things such sacrilegious ideas as that the growing of a plant from a tiny seed is no smaller wonder than the multiplication of the five loaves of bread. He became careful through his bad experiences and avoided, for instance, confessing openly his adherence to Copernicus' system, which would have been regarded as a heresy punishable by the stake, and only hinted carefully at his concept by attributing to the earth a proper circuit through the heavenly space, and in putting the reasons for the Ptolemaic, the Tychonic and the Copernican theory so beside each other that the unbiased reader noticed which was the more convincing. But he could not suppress his nature entirely, and the fact that he was called by the citizens to be their leader in the reforms demanded at the meeting at the Linderhof, 1713, did of course not diminish the mistrust of the conservative elements. So it was not of much avail that his tendency was to show just by his *Physica Sacra* that religiousness is not at all upset by knowledge of natural facts, a truth that he wanted to propagate by his admirable commentary. Wolf thinks that he very wisely planned this form of scientific communications to imbibe groups with knowledge of natural history which otherwise would not have been approachable.

Thus his *Physica Sacra* originating in his lectures in physico-mathematics and in single tractates of which the most important and voluminous was the first, viz. *Jobi Physica Sacra*, became not only a turning point in the concept of the Philistine plague but one of the pivots of modern enlightenment erected under strong opposition.

It is evident that a personality like his ought to have found mention in the big biographical dictionaries. But this is a sideline. What

seems peculiar is that his merit had to be brought to light by one who disagrees with his definition of the Philistine plague! It may be that one of the members of the committee for the Revised Version has mentioned him. In the numerous books and articles commenting on the subject which I have probed no mention was to be found, while—not to return to Lichtenstein's oddities—the *Hierozoicum* of Bochartus (about 1650) is quoted conscientiously, though it did not bring much light into this question at all.

I must defer the proof of my differing idea about the essence of the Philistine plague and the character of the apholim. I might only hint at my conviction that the version hemorrhoids, untenable as it is, comes nearer to what I think the truth than plague-boils. But I think that it is a matter of historic justice to give honor to whom honor belongs. Scheuchzer's diagnosis, no doubt, was an advance from the standpoint of a logical interpretation of the general symptoms described. Even an adversary of the correctness must concede this. But it would have become the adherents to extoll the idea of a man whom they followed.

# FRANCIS HOME, M. D.
## (1719-1813)

### THE SCOTTISH MILITARY SURGEON WHO FIRST DESCRIBED DIPHTHERIA AS A CLINICAL ENTITY

EDGAR ERSKINE HUME
*Colonel, Medical Corps, United States Army*

Diphtheria is no " new " disease. Known in the East for centuries, it is mentioned in the Babylonian Talmud. Aretæus, the Cappadocian who lived in Nero's reign, gave a classic first hand account of a throat affection which may have been diphtheria. The paralysis of the palate was recognized in the sixth century by Ætius. Throat pestilences are mentioned in the Middle Ages. Gutierrez described *garotillo* which was six times epidemic in Spain between 1583 and 1600, though confined, says Garrison, to that country. In 1748 John Fothergill (1712-1780) told of a form of sore throat which was probably diphtheria. John Huxham (1692-1768) was first to describe paralysis of the soft palate in connection with this disease, but he confused the condition with scarlatina. Bard in America, also wrote, somewhat vaguely, about what is now called diphtheria, while Ballonius in 1762 recognized the affection of the larynx and trachea.

These writers all told of the sore throat, sometimes in epidemic form, but none of them give a picture of the disease as a clinical entity in all of its manifestations. The first to do that was a Scottish military surgeon, famous in his day, but now usually overlooked. He was Francis Home, later professor in the University of Edinburgh. In an essay on that subject, he told of Croup, an old Scottish word for what is now called diphtheria. Even in America the term " membranous croup " is not yet entirely out of use to designate this disease.

Francis Home had a long career of usefulness and made not a few other important contributions to the sum of our medical knowledge. Not only in his own land was he famous. His works were extensively used on the Continent and in the American Colonies, as well in the original Latin and English, as in French and German translation.

Besides his study of what is now called diphtheria, in which he accurately described the membrane and recommended tracheotomy for relief of extreme cases, he has other and varied priorities to his credit. He required the boiling of drinking water during military campaign, suggested the use of convalescent serum in treatment of measles, showed that sugar in diabetic urine may be fermented by yeast and that plants take up nutrient matter from the air, brought chemistry to the aid of agriculture, and was a pioneer in the study of bleaching processes.

Dr. Francis Home was born, probably in Edinburgh, on 17 November 1719. He was the second son of James Home of Eccles, advocate, author of a number of professional and historical works, son of Sir David Home of Crossrig, Lord Crossrig, a Senator of the College of Justice, as the highest Scottish court of justice is known, and his second wife, a daughter of Francis Hepburn of Briston. (William Drummond, *Histories of Noble British Families,* 1846, ii, 30; see also *Domestic Details of Sir David Hume of Crossrig, one of the Senators of the College of Justice: April 28, M.DC.XCVII—January 29, M.DCC.VII,* Edinburgh, 1843, pp. 126). The name of Dr. Francis Home's mother has not been found by the writer (*Cf.* William Anderson, *The Scottish Nation,* 1869, ii, 485).

At an early age Francis Home was apprenticed to an Edinburgh practitioner named Rattray. Even before he completed his apprenticeship Home published a small treatise on Duns Spa, a watering-place near the principal town in the county of Berwick which had long enjoyed popularity among Border folk. He reasoned that the water of Duns Spa must have anthelmintic virtues, because earthworms died more quickly in it than in ordinary spring water.

Young Home was appointed Surgeon to the regiment of Dragoons commanded by John Cope [1] and served with distinction from 1742

[1] Sir John Cope was Colonel of the Seventh Regiment of Foot and was made a Knight of the Bath for his Continental service. He was present at the battle of Dettingen, 1743, having in the previous year been appointed to command the troops dispatched to the assistance of the Queen of Hungary. He is best remembered as the leader of the Hanoverian forces opposing the Jacobites under "Bonnie Prince Charlie" in the Rising of 1745. His ludicrous position at the battle of Prestonpans, were he was surprised and bewildered while half asleep, gave rise to the popular Jacobite song, "Hey, Johnnie Cope! Are ye waukin yet?."

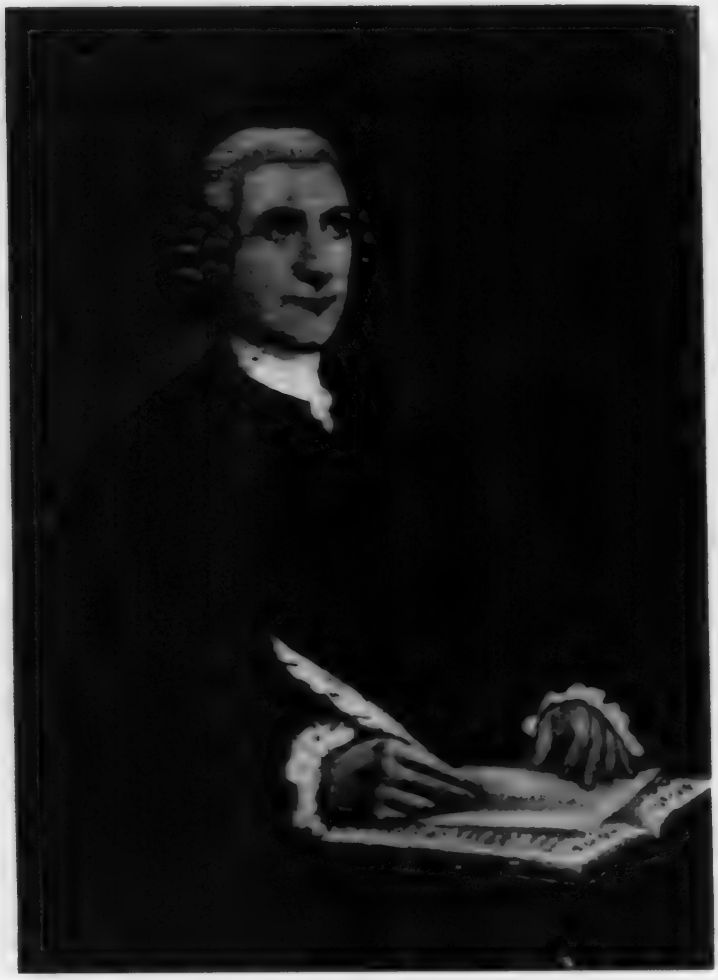


Fig. 1

Dr. Francis Home.
(1719-1813)

(From Comrie's *History of Scottish Medicine.*)

to 1748 in the British Army during the War of the Austrian Succession (1740-1748). While on duty in Flanders with the British Expeditionary Force he managed, during lulls in the campaign, to continue his medical studies at the University of Leyden. Leyden was then the principal educational centre on the Continent, at least as far as Scottish medical students were concerned. Its ties with Edinburgh were never more intimate. Hermann Boerhaave (1668-1738), the leading physician of the age, had died only a few years before, and his celebrated successors were carrying on his work.

During his military service in Flanders, Surgeon Home drew up a series of regimental orders for the prevention of fevers. Many of these sanitary measures are as sound today as when he recommended them. One is particularly noteworthy. It was ordered that "the dragoons shall drink no water without it be boiled first" (John D. Comrie, *History of Scottish Medicine*, 2nd. edit., 1932, i, 317). Perhaps this was the first time this precaution was ever put into effect, in the field or elsewhere.

The war over, Francis Home returned to Edinburgh and continued his medical studies. He received the degree of Doctor of Medicine from the University in 1750. His inaugural dissertation was *Dissertatio de Febre Remittente,* 4° *Edinburgi, apud T. et W. Ruddimannos,* 1750. He had seen much of remittent fever during his military service in Flanders. His dissertation became something of a standard. It was republished in 1778 in Smellie's *Thesaurus Medicus,* i, 435-464.

In 1752 he joined the Royal College of Physicians of Edinburgh, then nearing its century mark. He became President of the College before 1776. He was also an early member of the Royal Medical Society of Edinburgh.[3]

In 1755 there was a great prevalence of measles in Edinburgh. The mortality was about ten per cent (Comrie, i, 319). In that year Home wrote a paper suggesting a method of inoculation for the

[3] This society took its origin from a private debating society of medical students of Edinburgh, 1735. It obtained its Royal Charter through the efforts of Dr. Andrew Duncan (1744-1828), its president. Duncan obtained charters of three other royal institutions of the Scots capital: the Royal Public Dispensary, the Royal Edinburgh Asylum for the Insane, and the Royal Caledonian Horticultural Society (Comrie, ii, 481).

# DISSERTATIO MEDICA
## INAUGURALIS,

DE

# FEBRE REMITTENTE:

QUAM,

ANNUENTE SUMMO NUMINE,

*Ex auctoritate reverendi admodum viri*

D. GULIELMI WISHART S. T. D.

ACADEMIAE EDINBURGENAE PRAEFECTI,

NEC NON

*Ampliſſimi* SENATUS ACADEMICI *conſenſu,*
*et nobiliſſimae* FACULTATIS MEDICAE *decreto;*

PRO GRADU DOCTORATUS,

SUMMISQUE IN MEDICINA HONORIBUS ET PRIVILEGIIS
RITE ET LEGITIME CONSEQUENDIS,
ERUDITORUM EXAMINI SUBJICIT

FRANCISCUS HOME, Scoto-Britannus.

Ad diem 7 Martii, hora locoque ſolitis.

EDINBURGI,
Apud T. et W. Ruddimannos. M.DCC.L.

Fig. 2

Title-page of Francis Home's Thesis for the degree of Doctor of Medicine, University of Edinburgh, 1750.

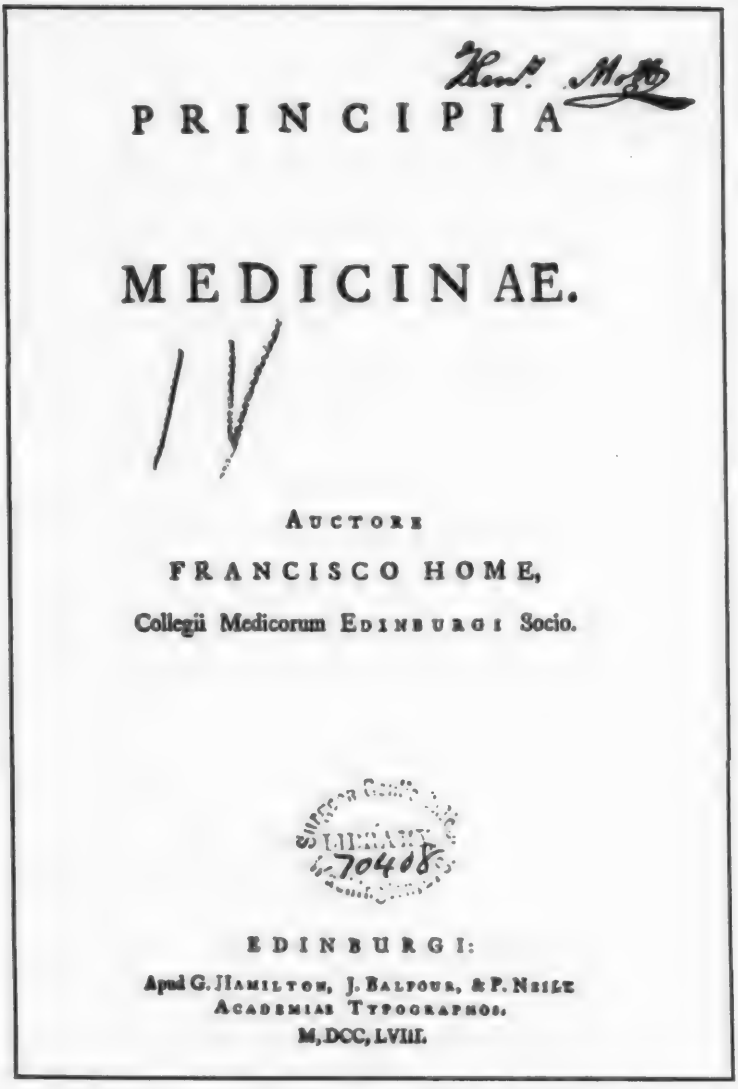
The subject, *Remittent Fever*, was one of which he had gained first-hand knowledge during his military service in Flanders.

prevention of the disease (Garrison, 335). It was nothing more nor less than the use of convalescent serum, a method considered new in the Twentieth Century.

His first reference to Croup appeared in his *Principia Medicinæ*, published in 1758, in which he described a malignant angina, chiefly affecting children, very contagious in form and often attacking whole families and producing great weakness. The work in which this observation occurs was long a standard, as may be seen from the large number of editions through which it passed. The first was *Principia Medicinæ*, xxiii, 318 pages, 8°, *Edinburgi, G. Hamilton et al*; 1758; second edition, xii, 316 pages 8° *Edinburgi, A. Millar*, 1762; third edition, xxi, 240 pages, 8°, *Edinburgi, T. Cadell*, 1770; fourth edition, xvi, 326 pages, 8°, *Amstelodami, sumpt. frat. de Tournes*, 1775; new edition, viii, 232 pages, 12°, *Venetiis, apud J. Orlandelli*, 1797. The work was written, says Anderson, " in correct and elegant Latin," and contains an extensive scientific history of diseases. It was widely used, on the Continent as well as in Britain, as a textbook. The title of the French edition is: *Principles de médecine, traduits du Latin en françois, par M. Gastellier, auxquels on a joint un extrait d'un autre ouvrage du même auteur, intitulé: Expériences et observations de médecine, traduit de l'anglois*, xvi, 623 pages, 16°, Paris, Vincent, 1772.

Home's larger and better known study of Croup appeared in 1765. The disease, an acute malady of the throat accompanied by harsh breathing and hoarse coughing, was widely prevalent in Scotland, though not previously described. Home said himself that his description was the first account of the disease which, though somewhat rare in Edinburgh, was frequent in Fife, Ayrshire, Galloway, and other parts of Scotland near the sea. In the *Statistical Account of Scotland*, prepared by the several parish ministers in 1791, Sinclair deplores the uncommon mortality due to epidemic sore throat, the fatal results of which might have been prevented by proper care.

His treatise, *An Enquiry into the Nature, Cause and Cure of Croup* was published in Edinburgh in 1765, more than half a century before the celebrated work of Pierre Bretonneau (1771-1862) which gave us the modern name for the disease — diphtheria. Bretonneau's work is: *Des inflammations spéciales du tissu muqueux*



PRINCIPIA

MEDICINAE.

AUCTORE

FRANCISCO HOME,

Collegii Medicorum EDINBURGI Socio.

SURGEON GENERAL'S OFFICE LIBRARY 70408

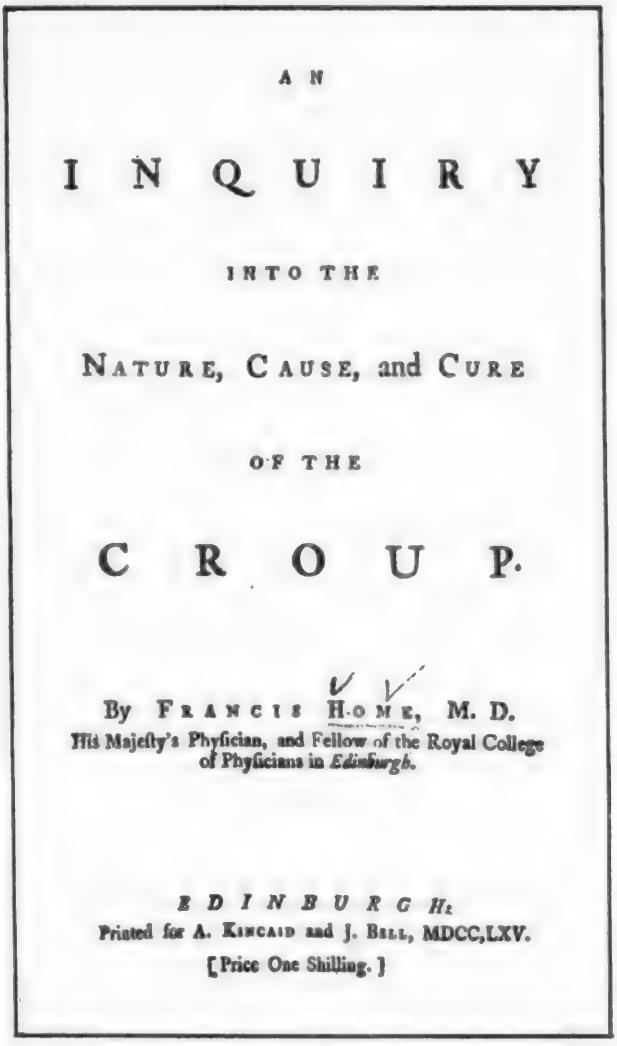
EDINBURGI:

Apud G. HAMILTON, J. BALFOUR, & P. NEILL
ACADEMIAE TYPOGRAPHOS.
M, DCC, LVIII.

Fig. 3

Title-page of Home's *Principia Medicinæ*, 1758.

In this work he described a malignant angina, chiefly affecting children, very contagious in form, often attacking whole families. He wrote his essay on Croup seven years later. *Principia Medicinæ* went through several editions and was widely used in Britain, on the Continent and in the American Colonies. A French translation was published in Paris in 1772.



A N

# I N Q U I R Y

INTO THE

NATURE, CAUSE, and CURE

OF THE

# C R O U P.

By FRANCIS HOME, M. D.
His Majesty's Physician, and Fellow of the Royal College of Physicians in *Edinburgh*.

*EDINBURGH*
Printed for A. KINCAID and J. BELL, MDCC,LXV.
[Price One Shilling.]

Fig. 4

Title-page of Dr. Francis Home's essay on Croup, 1765.

Herein he gives an account of the disease as a clinical entity, describes the membrane as being "like the blankets of a bed that has been slept in," and suggests tracheotomy as a relief.

*et en particulier de la diphthérite, ou inflammation pelliculaire, connu sous le nom de croup, d'angine maligne, d'angine gangréneuse,* etc., vii, 540 pages, 8°, Paris, 1826.

Squire in Reynolds's *System of Medicine* (1866, i, 236; 1870, i, 70) gave Home full credit for priority, calling his study "a careful and most philosophical inquiry," deciding the dependence of symptoms on pathological changes in the larynx and trachea.

Francis Home considered his monograph on Croup the first systematic study of that disease. He says:

> There is one disease which had entirely escaped all regular examination; and concerning which, there was little to be learned by inquiry, and still less from books; I mean the *Croup*. I never have seen anything written on this subject, except a Thesis, where the author gives us no facts; and classes it amongst the spasmodic distempers, to which is has no resemblance, either in its progress or cure. The *Catarrhus suffocativus of Etmuller,* tho' it resembles the Croup in many particulars, yet appears to be a very different disease in some symptoms, in the cure, and appearance after death.
>
> Dr. Russell, in his *Œconomy of Nature,*[8] describes, in a few lines, a disease very similar to this, in most of its symptoms. But it seems not exactly the same, as it was attended with ulcers about the larynx, and terminated often in a sphacelus of the lungs. Besides, had it been the same disease with our Croup, the same appearances must have occurred, upon dissection, to him as to us.
>
> I shall, therefore, treat this disease as entirely unknown as to its nature, cause, effects, and cure; and try how far our facts will carry us towards a discovery of these. (pp. 5-6).

Home then expresses wonder at the failure of others to give proper consideration to this important disease:

> How so singular and dangerous a disease has been totally neglected, while such attention has been paid to most others, is not the least surprising circumstance belonging to it. Its external features ought to have been sufficient to have roused an inquisitive searcher into diseases; its internal appearances, if but once seen, must have raised, from their singularity, the strongest desire to investigate its nature. But these seem to have been more than counterbalanced by its local situation [elsewhere he says that it was common

[8] *The Œconomy of Nature in Acute and Chronic Diseases of the Glands,* (1755) an English translation, made under the author's supervision, of his *De tabe glandulari, sive de usu aquæ marinæ in morbis glandularum dissertatio, Oxoniæ,* 1750. The writer was Richard Russell (1700-1771) of Edinburgh.

in several of the coastal counties of Scotland, but rare in Edinburgh]; the unfrequency of its appearance; the subjects which it attacked, these being generally children, and unable to give a distinct account of their complaints; the rapidity of its course; the apparent easiness of its symptoms; and their similitude to other catarrhal or peripneumoniac distempers. These seem to be sufficient reason for its being so long undistinguished and undescribed, without laying us under any necessity of looking on it as a new disease. Probably it has existed more or less in all ages; for the same productive causes must have operated formerly, as they do at present. (pp. 6-7).

He was unable to account for the comparative rarity of the disease in the Scots capital, while in the country it was not uncommon, adding that he who would study the malady must do as he had done, and go to the regions wherein it was found. He has this to say of his having become interested in the Croup:

The danger of the symptoms under such apparent ease, and the singularity of its appearances after death, in the first examination, excited my curiosity. The subsequent cases were sufficient to show me its nature, tho' perhaps not to point out a certain cure. This is not always allowed to mortals. To be able, however, to distinguish it from other diseases; to discover the nature of it; to point out when it is cureable, and when not; perhaps to lay a foundation for improvement in its most desperate state; that is the design of the following pages.

To be the first author in treating a disease; to have no assistance from preceding experience, is a situation a little uncommon in these modern times. To this cause, and to the rarity of the disease, must be imputed my not bringing it to that degree of improvement, that I could wish; and that has happened in other diseases. . . (pp. 7-8).

Home first considers the incidence of the Croup, noting the susceptibility of young children:

This disease appears to belong peculiarly to children; and the younger they are, after they are weaned, the more liable they seem to it. On the breast, they appear less subject to it; or, which is as probable, as they cannot tell their complaints, it is taken for some other disease. I never saw, or heard of one, above twelve years of age, affected by it. After this the body gains a strength capable of resisting the cause, or of expelling it when received. About this time, or a little after, very great changes happen in the human frame.

In his account of the clinical picture of the disease Home adopts the form of case presentations. Rather than generalize and then

Fig. 5

Dr. Francis Home.
(1719-1813)

(From Kay's *Portraits of Edinburgh.*)

# RECHERCHES

## SUR LA NATURE,

## LA CAUSE ET LE TRAITEMENT

# DU CROUP,

PAR F. HOME,

Docteur Médecin de Sa Majesté Britannique, Membre du Collége Royal de Médecine d'Edimbourg.

OUVRAGE TRADUIT DE L'ANGLAIS

PAR F. RUETTE,

Docteur en médecine, Médecin de Bienfaisance de la Division des Tuileries, Membre de la Société médicale d'Emulation et de celle de Médecine-pratique de Paris, etc. etc.

## A PARIS,

Chez ALLUT, Imprimeur-Libraire, rue de l'École-de-Médecine, n°. 6, vis-à-vis S.-Côme.

1809.

Fig. 6

Title-page of the French translation of Home's essay on Croup, 1809.

This publication, nearly half a century after the original appeared, is evidence of the importance of this monograph in eighteenth century medicine. Bretonneau's treatise in which the term *Diphtheria* was first used, appeared seventeen years after this translation.

set forth exceptions and atypical phenomena, he allows the reader to see the patients through his eyes. The case histories are remarkably interesting and show Home to be a keen observer. There can be no doubt in any of these histories that the patient had diphtheria, as we now know it. Having presented case after case to illustrate the disease and establish it as a definite clinical entity, the author proceeds to draw conclusions from his experience, both as to diagnosis and treatment. This he does in a series of *Corollaries* all showing the accuracy of his judgment. The first *Corollary* concerns diagnosis.

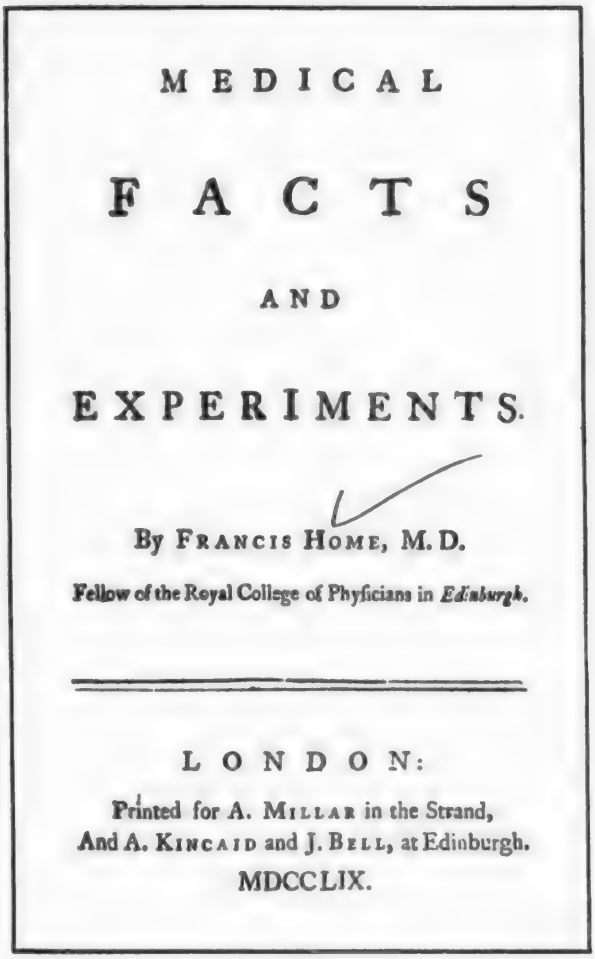
> It seems easy, in general, to distinguish the Croup from all other diseases hitherto described. A peculiar sharp shrill voice, not easily described; a remarkable freedom from all complaints, when in imminent danger, so that they will eat a minute before they expire; a quick laborious breathing; a frequent pulse, some times strong at first, but always soft and weak towards the end; scarce any difficulty of deglutition, or remarkable inflammation in the *fauces;* a dull pain, often, and sometimes an external swelling in the upper part of the *trachea*; senses quite distinct to the last; and all the symptoms most rapid in their progress, characterise sufficiently this disease. I have not mentioned a cough, as that symptom is sometimes absent; and when it attends the Croup, it is not of the common kind, but more short and stifled, and less convulsive, with little or no expectoration. (pp. 32-33).

Certain other symptoms, such as " red swollen face, œdematous feet, drought, urine, sometimes with, and, at other times, without a sediment, retchings, etc." are also mentioned but our author adds that they are not so " characteristical " as those first named.

As to differential diagnosis the author warns against mistaking Croup for " peripneumonical complaints " and severe colds. In Croup the lungs are " free from any inflammation, and are not the seat of the disease." Similarly, he says, the *Catarrhus suffocativus* of Etmuller is not to be mistaken with Croup, as it too is a " peripneumony."

The disease of which Home treats bears, he finds, a number of common names. On the west coast of Scotland it is called *Chock* or *Stuffing*. In view of the characteristic shrill voice and difficult breathing, he proposes the name *Suffocatio stridula* for what is vulgarly called Croup.

In his second *Corollary* Home stresses the peculiarity of the disease to a certain age, and likewise its seasonal variation. All of the



MEDICAL

FACTS

AND

EXPERIMENTS.

By FRANCIS HOME, M. D.

Fellow of the Royal College of Phyſicians in *Edinburgh*.

LONDON:

Printed for A. MILLAR in the Strand,
And A. KINCAID and J. BELL, at Edinburgh.
MDCCLIX.

Fig. 7

Title-page of *Medical Facts and Experiments* published by Francis Home in 1759.

cases he had observed occurred between the months of October and March. "The moist and cold weather in winter, seems to have great power in producing this disease."

The seat of the pathological lesions is discussed in the third *Corollary*. Though others had considered the seat of the malady as in the glottis or even the lungs he finds the trachea chiefly affected:

> The seat of this distemper appears to be the cavity of the wind-pipe. The place firstly, and most particularly, affected, is the upper part of the *trachea*, about an inch below the *glottis;* for in that part they complain of a dull pain; the external swelling has been observed there; and the morbid membrane we have found stretching from that place downward. The back part of the *trachea*, where there are no cartilages, seems, from the inspection of those that die of this disease, to be its first and principal seat, as this morbid membrane is often found there, when it is in no other part.

In his last *Corollary* Dr. Home discusses the etiology of the disease. He casts aside as "fanciful erroneous opinions" the ideas expressed by "people who never gave themselves the trouble to search into the real cause of this distemper" that the cause might be muscle spasms causing contraction of the glottis, suppuration or other inflammation of the lungs, etc. He was more observant:

> The cause of this disease is a preternatural white, tough, thick membranous crust, covering, often for many inches, the inside of the *trachea*. This membrane is of so tenacious a consistence, that it can remain soaking in warm water, for many days, without dissolving. It is not attached to the parts below, but is easily separable from them, as there is always matter behind it. When it ends, the *trachea* is covered with good *pus*, or purulent *mucus*; as are generally, the ramifications of the *bronchiæ* and vesicles, which, in some cases, were quite filled with it.

Elsewhere he compares the membrane to "the blankets of a bed that has been laid in" (p. 38).

As to treatment, Home suggested the ordinary palliative measures which were used down to the time of the introduction of intubation. However in that too he had far vision. He actually suggested that tracheotomy be performed as an emergency measure to prevent the patient suffocating. He hints in several places in his treatise that there must be some poison circulating in the blood which causes the local picture as above described.

The monograph on Croup was translated into French forty-four

years after it was written, good evidence of its place in the medical literature of the eighteenth century. The translation is: *Recherches sur la Nature et le Traitement du Croup, traduction de l'anglais par F. Ruette, Paris, Allut,* 1809, pages 62. This was seventeen years before Bretonneau published his treatise.

*Medical Facts and Experiments* was Home's first book in English. It is a work of 288 pages, 8°, London, A. Millar, 1759. The French translation of this book, by Gastellier in 1772 has been mentioned above. A German edition had already appeared in 1768: *Medicinische Beobachtungen und Versuche. Aus dem Englischen übersetzt von Georg Heinrich Königsdörfer,* 240 pages, 8°, *Altenburg, Richter,* 1768.

In 1768 Home was appointed Professor of Materia Medica in the University of Edinburgh, being the first occupant of that chair. He was, in a way, the successor of Charles Alston (1683-1760), a pupil of Boerhaave, who first taught materia medica in connection with his instruction in botany, being at the time the King's Botanist, and in charge of the Royal Garden at Holyrood. Home was at the same time one of the King's Physicians for Scotland.

*Methodus Materiæ Medicæ,* a classified syllabus of drugs for the use of students was published by Home in 1770. It went through several editions. In it "he speculated somewhat rashly," says G. T. Bettany, "but carefully treated the physical characters and mode of administration of drugs" (*Dict. Nat. Biogr.,* xxvii, 229). The last edition of this work was: *Methodus Materiæ Medicæ, Editio Nova,* xvi, 90 pages, *Edinburgi, Bell, Bradfute & Creech,* 1793.

In October 1773 Home was appointed by the University to teach the Institutes of Medicine. He continued this instruction for two years. He was never the professor of that subject, though it is not clear why he was not. The chair had been proffered Alexander Monro Drummond but he, having become *persona grata* to the King of Naples, was induced by that monarch to remain in his kingdom and decline the offer of the Town Council of Edinburgh. The chair was not regularly filled until the appointment of James Gregory (1753-1821) in 1778.

Home's last book was *Clinical Experiments, Histories and Dissections,* which he published in 1780. In it he mentions his discovery

Mediciniſche

# Beobachtungen

und

# Verſuche

von

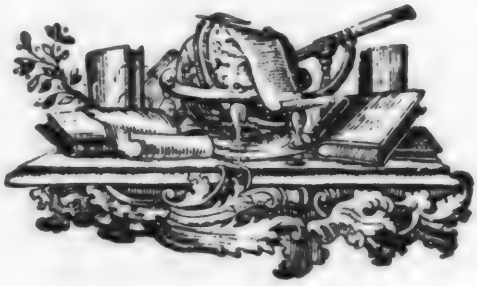
## Herrn Franz Home

der Arzneykunſt Dokt. und Mitglied der königl. Geſellſchaft der Aerzte zu Edinburg.

Aus dem Engliſchen überſetzt

von

## D. George Heinrich Königsdörfer.



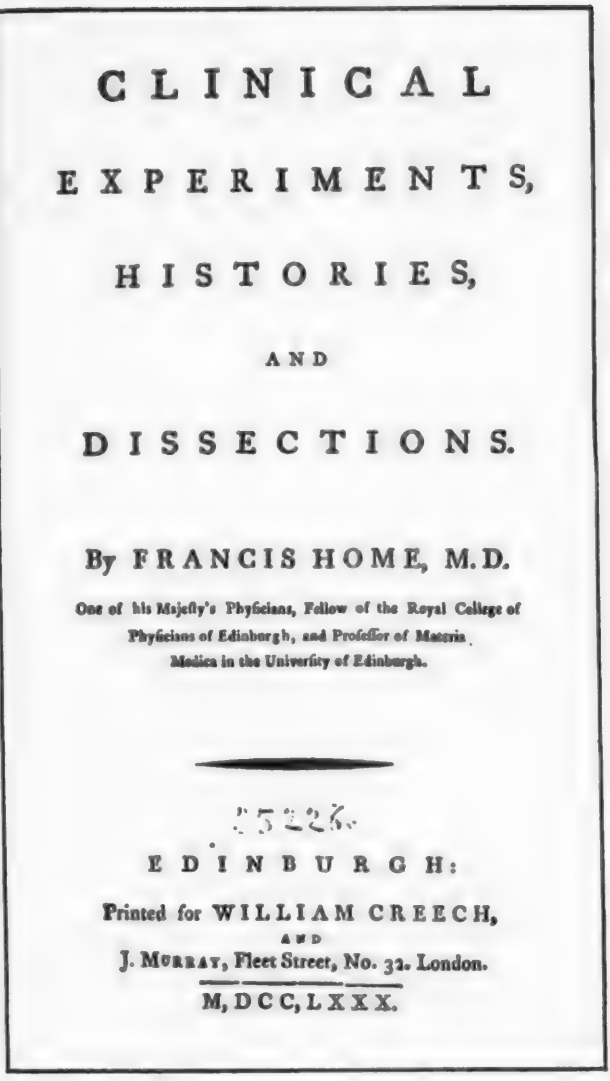
Altenburg

in der Richteriſchen Buchhandlung, 1768.

Fig. 8

Title-page of Dr. Francis Home's *Medical Facts and Experiments*, German Edition, 1768.

The original appeared in 1759. A French translation was published at Paris in 1772.



CLINICAL

EXPERIMENTS,

HISTORIES,

AND

DISSECTIONS.

By FRANCIS HOME, M.D.

One of his Majesty's Physicians, Fellow of the Royal College of Physicians of Edinburgh, and Professor of Materia Medica in the University of Edinburgh.

EDINBURGH:

Printed for WILLIAM CREECH,

AND

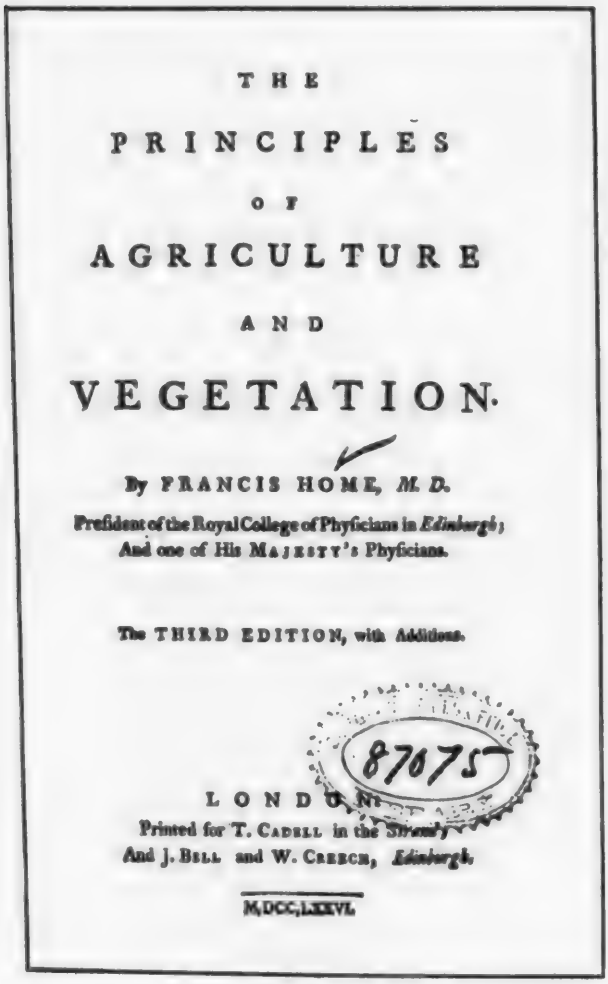
J. MURRAY, Fleet Street, No. 32. London.

M, DCC, LXXX.

Fig. 9

Title-page of Home's *Clinical Experiments*, his last important work, 1780.

In it he mentions his discovery that the sugar of diabetic urine could be fermented with yeast.



THE

PRINCIPLES

OF

AGRICULTURE

AND

VEGETATION.

By FRANCIS HOME, *M. D.*

Preſident of the Royal College of Phyſicians in *Edinburgh*;
And one of His MAJESTY's Phyſicians.

The THIRD EDITION, with Additions.

87075

LONDON:
Printed for T. CADELL in the Strand;
And J. BELL and W. CREECH, *Edinburgh*.

M,DCC,LXXVI.

Fig. 10

Title-page of Dr. Francis Home's Treatise on Agriculture, 1776.

This work, said to be the first of its kind, won Home the first Professorship of Agriculture at the University of Edinburgh. Home was the first to show that plants take up nutrient matter from the air.

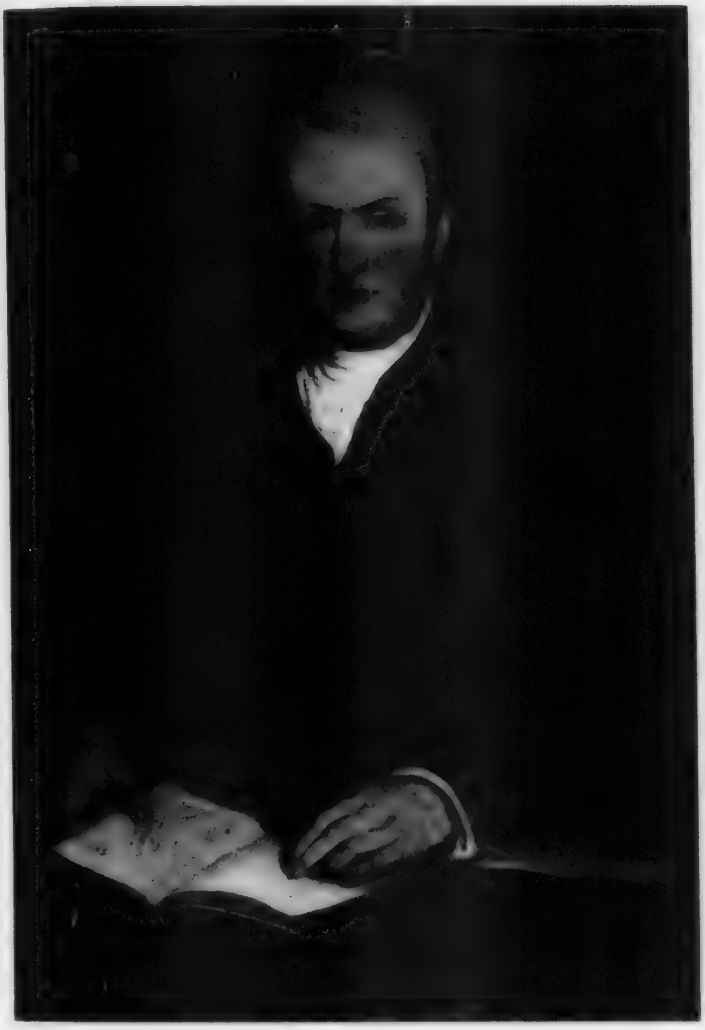


Fig. 11

Dr. James Home.

(1758-1842)

Son of Dr. Francis Home and his successor at the University of Edinburgh.

(From Comrie's *History of Scottish Medicine.*)

that the sugar of diabetic urine could be fermented with yeast. This work too appeared in several editions, viz: *Clinical Experiments, Histories and Dissections*, xvi, 458 pp. 8°, Edinburgh, Millar, Creech, 1780; second edition, xii, 499 pages, 8°, London, J. Murray, 1782; third edition, xii, 499 pages, 8°, London, J. Murray, 1783. The German edition is: *Clinische Versuche, Krankengeschichten und Leichenöffnungen, Aus dem Englischen übersetzt*, x, 532 pages, 8°, Leipzig, *M. G. Weidmanns Erben & Reich*, 1781.

By a printer's error the second and third editions are dated MDCLXXXII and MDCLXXXIII, respectively.

Francis Home was also interested in other fields than medicine. His study, *A Record of Experiments on Bleaching* was awarded a payment of a hundred pounds by the Honourable Board of Trustees for the Improvement of Fisheries and Manufacturers in North Britain, and was considered to have been of great benefit to industry. It was published in 1756 by order of the Board, and subsequently was translated into French and German.

In 1776 his treatise, published in London by T. Cadell, xiii, 215 pages, 1757, on the *Principles of Agriculture and Vegetation*, was awarded a gold medal by the Edinburgh Society for the Improvement of Arts and Manufactures. In it he endeavored to introduce chemistry to the assistance of agriculture. This book is thought to have been the first to show that plants take up nutrient matter from the air. A third edition was brought out in 1776, a French translation in 1761 (Paris) and a German translation in 1779 (Berlin). The work was long considered the most scientific account of the subject. As a result of the success of the publication, Dr. Home was appointed first Professor of Agriculture at the University of Edinburgh. He was past seventy-one years of age.

He died in Edinburgh on 15 February, 1813.

Perhaps it is only among sons of a country like Scotland, where, according to the *Sassenach*, pedigrees are long and purses short, that the distant ties of blood connecting the subject of this memoir and the writer thereof would be traced. By actual count the one is the eighth cousin five times removed of the other! They were born 170 years apart, and their nearest ancestor in common perished at the battle of Flodden in 1513! The name Home is pronounced Hume, as it is also often spelled.

*TEXTS AND DOCUMENTS*

# A MEDICAL MANUSCRIPT PRESENTED TO CHARLES VIII OF FRANCE

CURT F. BÜHLER
AND
ROBERT H. BOWERS

Manuscripts specially written for presentation to royal personages are not infrequently found among the treasures of the world's great libraries. Usually these are works of literary or devotional character. Carefully written, beautifully decorated and finely bound, many of these charming manuscripts are as fresh and unsoiled to-day as they were when they left the hands of the scribe, mute testimony to the fact that possibly they were hastily glanced at, certainly little read. On the other hand, manuscripts of utilitarian value, or at least those presumed to have been so in their own day, are much less frequently met with, either because they were not favoured for the purpose of presentation or because their royal owners, putting them to better use than mere preservation, literally "read them to pieces." That manuscript 509 of The Pierpont Morgan Library owes much of its importance to the fact that it represents such a utilitarian gift escaped the notice of Seymour de Ricci.[1] The manuscript may be described as follows:

The Pierpont Morgan Library, MS. 509.

MS. on vellum, written and illuminated in Italy in the last decade of the fifteenth century. The decoration is slight, consisting of a floriated initial S in blue and gold on folio 1r, repeated on 5r; other initials are supplied in gold or blue. On folio 5r is a coat-of-arms; a green shield surmounted by a gold crown, on which is depicted an ermine, is set on a blue back-ground, covered with gold fleur-de-lis, all of which is encircled by a gold wreath. The

[1] *Census of medieval and renaissance manuscripts in the United States and Canada* (New York, 1935-40), II, 1464. The MS. is described thus:

509. Petrus de Abano, De venenis. Vel. (XVth. c.), 38 ff. (20 x 15 cm.). Written in Italy. Orig. oak boards and dark-red mor., stamped and gilt.

"L. Donini Regimontani D. Medici 1633." Later owned by Courtoys (ca. 1680), Simon Brigault and Agnan Brigault (ca. 1780).—Obtained from Olschki (1912).

lower margin of folio 1, which may have contained another coat-of-arms, has been cut away with some damage to the text.

The handwriting is very clear; chapter-headings, marginal notes, etc. are written in a brown ink. Catch-words are found at the end of each quire.

38 leaves, the last two of which are blank. Collation: a-d$^{10}$, the last two, presumably also blank, having been cut away. The leaves measure 8 x 5¾ inches and there are 25 lines to the full page. The manuscript is bound in a contemporary binding of dark red morocco, stamped and gilt, over oak boards.

Contents: Dedication by Franciscus Pamoleus to King Charles VIII of France (ff. 1$^{r}$-3$^{v}$); Petrus de Abano, *De venenis sive De remediis venenorum* (ff. 3$^{v}$-33$^{r}$); Franciscus Pamoleus, *De lapidibus* (ff. 33$^{r}$-36$^{v}$).

Provenance: the historic device on folio 5$^{r}$, noted above, belongs to Anne de Bretagne, Queen of Charles VIII. This device appears to be painted over an earlier one, quite possibly the winged stag of Charles VIII. The further history of the MS. is described in the *Census*.

It appears certain that this manuscript was intended for presentation to Charles VIII and his wife, according to the biographical hints which Pamoleus gives us in the dedication. In addition there is a marginal note on folio 33$^{v}$ which speaks of Francesco Sforza as dead; the manuscript must, therefore, have been written after 1466 (the year of the Duke's death) and Charles VIII was the only king of that name to rule over France between 1461 and 1560. Finally the coat-of-arms, of which we have already had occasion to speak, bears the device of Anne de Bretagne.[3]

It is not easy to determine the exact date on which the manuscript was presented to the King. Charles' marriage to Anne took place in December 1491 and on 8 February, 1492, she was crowned Queen at St. Denis.[5] This fixes the *terminus a quo* roughly as January, 1492. On the other hand, Pamoleus states that he crossed the Alps (superatis alpibus) in order to see the King, which implies that Charles was still in France. Thus the *terminus ad quem* would appear to be September, 1494, since Guicciardini[6] states that Charles arrived in Asti on the ninth of that month. It is difficult to believe that the presentation could have taken place after his return from

[3] Cf. Mrs. Bury Palliser, *Historic devices, badges, and war-cries* (London, 1870), pp. 113-4.

[5] Marie-Anne Pichard, *Anne de Bretagne* (Dinan, n. d.), pp. 14-5.

[6] *Storia d' Italia* (Pisa, 1822), I, 179.

the disastrous Italian expedition, for by then Milan[5] and the "Moro" (Ludovico Sforza) had deserted the cause of Charles and the series of set-backs following hard on the battle of Fornovo could scarcely have earned for Charles the title "Secundus Carolus Magnus." As we have seen, then, the presentation of the manuscript must have taken place between January, 1492, and September, 1494. Since the birth of the Dauphin (10 October, 1492) is not noted, one might be inclined to say that the manuscript could hardly have been written much later, though it must be borne in mind that several months may have elapsed before this news reached Pamoleus in Italy. If a guess is to be hazarded, it is possible that Pamoleus accompanied the great and imposing mission with which Ludovico Sforza hoped to impress the youthful Charles and that the presentation took place some time during the visit of this embassy.[6]

As for the Franciscus Pamoleus of Genoa who presented the manuscript, no further details have come to light, save for the trifling fact that the Pamoleus family is elsewhere spoken of as being native to Liguria.[7]

[5] In 1491, Ludovico received the investiture of Genoa, in the name of his nephew, from Charles; thus Pamoleus, as a Genoese citizen, was bound to the fortunes of Milan. Furthermore, there are several references to Milan in the text, showing Pamoleus' vivid interest in Milanese affairs. It seems unlikely, therefore, that Pamoleus would have supported Charles after Milan (and Genoa) had joined the Pope, Venice and others to form the League which was to defend the confederates against aggression.

[6] "The Milanese embassy of unusual magnificence that soon afterwards visited France had no compromising instructions. Its object was to win the French courtiers by presents, to make all vague assurances of general devotion, and to secure if possible the protection of the King for the Duke of Bari himself. In all this it succeeded." (*Cambridge Modern History*, New York, 1907, I, 109). In his *Memoires* (Paris, 1552, f. 121), Philip de Commines says: "Et ainsi, comme dict est, l'an mil quatre cens quatre vingts & treize, commença à faire sentir à ce ieune Roy Charles, huictieme, de vingt & deux ans, des fumees & gloires d'Italie: luy remonstrant, comme dict est, le droict qu'il auoit en ce beau royaume de Naples, qu'il luy sçauoit bien blasonner & louer: . . . Leurs paroles en public n'estoyent que visitations, & paroles assez generales: & estoit la premiere Ambassade grande qu'il eust enuoyee deuers ledict Seigneur." Since the Dauphin is not mentioned, it seems unlikely that the presentation took place during the visit of 'Messer Galeazzo da San Severino' to Lyons in the spring of 1494, to urge upon Charles the need of haste.

[7] Christian G. Jöcher, *Allgemeines Gelehrten-Lexicon* (Leipzig, 1751), III, 1214, has the following note: "Pamoleus (Joh.), beyder Rechten Doctor, aus

The text of the dedication is here printed in the usual manner, all abbreviations being expanded with the use of italics; the punctuation and the capitals are those of the original. A number of footnotes have been appended to explain the historical details.

Ad Christianissimum Regem Francorum Diuum
Carolum Magnum Secundum [8] Franciscus
Pamoleus 1. doc.[9] Januensis.[10]

Semper optaui Christianissime Rex postq*uam* discretionis annos attigi posse rem gratam facere Ser*enissi*me Familie Regum Francorum; et sub illorum iusto regimine viuere: Delectatusq*ue* sum mira deuotione audire. legere. Laudare *et* recensere digna facta ip*s*orum Regum: Adeo q*uod* plurimi

Ligurien, florirte im Anfange des 17 Seculi, und gab 1603 zu Genua Praxin judicialem causarum civilium heraus."

[8] Charles VIII (1470-1498) dreamt of imitating the Charlemagne of legend and of becoming the Emperor of Constantinople and King of Jerusalem; his mind had, according to Guignebert (*Short History of the French People*, I, 425), like Don Quixote been disordered by the perusal of endless romances of chivalry. He proposed to claim the rights of the House of Anjou, to which his father Louis XI had succeeded, to the Kingdom of Naples and to use this as a stepping stone to the ultimate capture of the East. He sacrificed greatly by signing treaties with Ferdinand of Aragon, Maximilian of Austria, and Henry VII of England before embarking on a scheme considered rash by his conservative advisers but he did succeed in entering Naples in great pomp on February 22, 1495. For general accounts of the expedition, see *Cambridge Modern History*, I, 104-18, and J. S. C. Bridges, *A History of France from the death of Louis XI* (Oxford, 1924), vol. II, as well as the accounts by Commines and Guicciardini, *op. cit.* Further details may be found in J. Delaborde, *L'expédition de Charles VIII* (Paris, 1888), in E. Herbst, *Der Zug Karl's VIII nach Italien im Urteil der italienischen Zeitgenossen* (Berlin, 1911), and in the contemporary tracts (by Pierre Desrey, Jean Burchard, André de la Vigne, and an anonymous writer) printed in the *Archives curieuses de l'histoire de France* (Paris, 1834), sér. 1, t. 1, pp. 161-435. Commines (*op. cit.*, f. 118) says: "Le Roy estoit tresieune, foible personne, plein de son vouloir, peu accompaigné de sages gens, ne de bons Chefz: & n'auoit nul argent contant." Compare, also, the unflattering description in Guicciardini, *op. cit.*, I, 180.

[9] The reading of "1. doc." is uncertain. It may mean that Pamoleus was a 'doctor legens' or a "legis doctor," or that he held the "licentia docendi." See H. Rashdall, *The universities of Europe in the middle ages* (revised ed., Oxford, 1936), I, 112, 205, 221.

[10] The editors are obliged to Dr. George K. Boyce for his kindness in reading the proof and for several excellent suggestions.

admirati s*un*t cur Principes non visos. non cognitos tanta prosequerer affectione. Ad hoc motus sum: q*ua* licet scriptum sit bonos Reges et Principes a Deo missos esse: tamen visum fuit mihi q*uod* amplioribu*s* fauoribu*s* et gratijs prosecutus sit Reges Francoru*m*: *et* se*m*per credidi vnum ex ipsis redempturu*m* sepulcrum Do*m*ini profligatis et domitis hostibus fidei christiane. Sed postqu*am* venisti in lucem periculu*m*qu*e* de te fecisti motus incredibili deuotione om*n*es affectus meos ad te dirrexi: Admiratus q*uod* amisso pa*t*re tercio decimo [11] Anno etatis tue Rex [cre]atus tanta prudentia ac iustitia Regnu*m* tuum gubernaueris q*uod* Diuu*m* illum Otauianum Augustum superasti: Nam Is regnare cepit Decimo octauo etatis sue a*n*no. Tv Decimo tertio. Ille multa infortunia passus est priusqu*am* su*m*ma rerum potiretur. Tu Deo [? bene fauetur] [12] (fol. 1$^{v}$) superatis om*n*ibus insidijs [13] factus es mirabilis: victorqu*e* semper euasisti: Adeo q*uod* merito dici potes non solum vrbium sed Prouintiarum expugnator.[14] Hostium victor *et* malorum domitor. Speculum vite: *et* bonorum premiator.[15] Imo et imitatus in hoc Iulium Cesarem: cum sis om*n*ium memor: oblitus iniurie Iis bene fecisti qui contra te arma sumpsere. O magnum et preclarum munus a Deo tibi datu*m*. Perge queso inuictissime Rex vt profitias [16] de uirtute in uirtutem. Increbuit enim per

[11] Charles was but thirteen when his father died in 1483 and was therefore incapable of ruling; his able elder sister, Anne de Beaujeu, ruled in effect until he became of age.

[12] As the lower margin of the first folio has been cut away with damage to the text, the reading of these two words is doubtful.

[13] Possibly an allusion to the revolt of the League of the Princes, led by the Dukes of Orleans and Bourbon, against the French Crown (1485-1488). The revolt was quelled when Anne's able general La Trémouille defeated them in a decisive battle near St. Aubin in July, 1488. In May of 1491, Charles foolishly released the Duke of Orleans from confinement in the Tower of Bourges.

[14] This is sheer flattery since by the treaties of Étaples and Senlis, and the ceding of Roussillon and Cerdagne to Aragon, Charles had lost more than he had gained. It may, however, refer to the expectation that Brittany would be formally joined to France following Charles' marriage to Anne.

[15] An allusion to the chivalric (and practical!) obligation of a lord to distribute largess to his followers; Chaucer's Knight loved "fredom." Guicciardini, *op. cit.*, I, 180, in listing Charles' characteristics, states: "liberalità, ma inconsiderata, e senza misura, o distinzione."

[16] *profitias*, properly deponent: *profiteris*.

orbem de te fama q*uod* sis maximus cultor iustitie. Prudens et bonus sup*er* omnibus. fortis a*nim*o. temperatissimu*s*ve in omni re tua: *et* Christianissimus omnium Regum vincis omnes Caritate: Clementia et Liberalitate. Dirrigat D*omin*us cogitationes tuas i*n* via*m* suam: tibiq*ue* semper faueat. Hijs ergo Virtutib*us* tuis incensus sup*er*atis alpibus [17] ad te veni: quo liceret mihi te videre *et* aloqui: et amoris aliq*uo*d inditium deuotionisq*ue* testimonium pre me ferre*m*: vt quotiens donum meu*m* sumeres in manus: totiens clementie et humanitatis in me tue: deuotionisq*ue* in te mee renouaretur memoria. Habes animum et Cor meum Preclarissime Rex: Accip*er*e dignetur Maiestas tua et de meis rem delectabilem. Res quidem miranda est: que ex Indis (fol. 2$^{r}$) ad Italos vecta per multa secula iacens incognita tandem nescio quomodo iam longo tempore ad manus meas peruenit: qui: vt eam vidi: Maximo Rege dignam censui. Cu*m*q*ue* in dies magis atq*ue* magis delectarer super mirabilitate op*er*is: Interim euasisti in Maximu*m* Regem: *et* quem censeo nouu*m* Carolum Magnum: tot rebus feliciter peractis. Hanc rem dicaui Maiestati tue: quo aliquando i*n* ea speculando delecteris *et* illam inter gazas tuas Regias conseruari facias. Est opus hoc mirandum omni ex parte: h*abet*q*ue* hanc precipuam virtutem q*uod* speculantes in eo letificat: tollereq*ue* videtur mesticiam: [18] si qua superueniant: visumve conseruat propter viriditatem: *et* adeo stupendum mirabileq*ue* est q*uod* ni fallor sub sole res manu facta dignior no*n* reperitur. Et hoc ausim dicere: quia perscrutatus ab hijs qui thesauros Magni Soltani. Regis Turcorum. Grecor*um* Imp*er*atoris: dum regna sua manebant. Su*m*mi Pontificis. Ser*enissi*mi Imperatoris: et aliorum Principum Christianitatis: nusq*uam* sensi rem tam stupendam visam fuisse. Accipias ergo Clementissi*me* Rex a Seruo tuo: qui te preposuit om*n*ibus Principibus Christianitatis: munus Iuditio meo te Rege dignu*m*. Thronus [19] est Presbiteri Joannis Magni Prin-

[17] *vide supra*. This seems to indicate that Charles was still in France and had not yet crossed into Italy.

[18] mesticiam, *i. e.* maestitiam.

[19] Prof. Meyer Schapiro suggests that Pamoleus is here speaking of some curio or "piece of virtu" (possibly of a box-shape) with the representation of Prester John's pleasure garden executed in various semi-precious stones. On the back of

cipis Indorum triumphantis in viridario. Sedet ipse (fol. 2ᵛ) Princeps alto tribunali sub columnis quinque ordinato. Astant Heroes et Famuli: inter quos vnus crucem erectam tenens. Ad eum vadunt Consors *et* filia cum muneribus et Ancillis tanto apparatu: tamque venusta maiestate q*uod* nemo est qui non miretur i*n* hoc opere speculando. Nam si plures in eo dirrigant oculos. Vni uidetur in multis partib*us* coloris purpurei: ac esset Balasius:[20] et alteri uiridentis tanquam Smaragdus:[21] Alijsque apparet diuersi coloris: etiam in eadem figura: quando prospitientes non sunt in pari linea. Vestes Regis. Coniugis *et* Filie ad omnem aspectum sunt eiusdem coloris. Ast vno aspectu videntur auro intertexto laborate: Alio ex Smaragdo et Balasio. Sed parumper opere reuoluto versicoloris apparent omnes sicut hyris:[22] Cuius splendoris et variationis causam Doctissimi interrogati reddere nesciuerunt. Redeo ad ipsum tribunal: quod est eleuatum per gradus. Ad huius hostium[23] sunt quatuor quasi custodes et duo Adolescentes magna cum reuerentia. Tectum vero theatri totum videtur ex Smaragdo: Columne ex Balasio: repositeque uidentur inter lineas Smaragdi. Parietes omnes videntur diuersis localib*us* compositi. Quid plura stupenda sunt omnia: *et* opus uariat in qualibet sui parte ad omnem motum speculantis (fol. 3ᵗ) in eo: Adeo q*uod* mirandum est quomodo potuerit manus hominis tam mirabile opus conficere. Si enim opponatur viridens[24] siue purpureus aut cocineus vel auratus color: in oppositum mutatur colorem. A tergo huius operis pingi feci opere non spernendo Leonis Pontificis qui

this, Pamoleus "caused to be painted" a counter-part in which Charles VIII occupies the position held by Prester John in the original. (Cf. Julius von Schlosser, *Die Kunst- und Wunderkammern der Spätrenaissance*, Leipzig 1908). For Prester John, see Friedrich Zarncke, "Der Priester Johannes," *Abh. d. phil.-hist. Cl. d. kgl. sächs. Ges. d. Wiss.*, VII, 827-1030 and VIII, 1-186. Pamoleus' description of the pleasure garden bears a curious resemblance to that of the palace of Susa and its garden given in his account of Prester John by Sir John Mandeville; see the editions of the *Travels* by (Sir) George Warner, Roxburghe Club, 1889, pp. 136-7 and by Paul Hamelius, EETS, 1919, pp. 183-5.

[20] Balase (cf. *NED*), a red-rose ruby; from the district near Sarmacand in Persia.

[21] An emerald or beryl.

[22] Hyris, *i. e.* iris, the rainbow or the precious stone of this name, mentioned by Pliny, *Historia naturalis*, xxxvii, 9 (Aldus, 1535, III, 287).

[23] Hostium, *i. e.* ostium.

[24] Viridens, *read* viridans.

tuum Carolum Magnum decorauit titulo Imperiali et eiusdem Caroli tribunalia etiam in Viridario: *et* assistit vtri[n]que sua Comitiua In hermis armatequе militie: Apparetque ex alio quasi de Celo missus nouus Rex cum radijs solaribus: qui videtur medius fieri inter istos Maximos Principes: et Alcuinus[25] magister Caroli: qui vaticinatus est futurum nouum Carolum Regem Francorum qui redimet Israel acclamat extenso digito. Ecce Carolum quem predixi Sepulcrum Domini recuperaturum.

Cupiens preterea te longeuum esse:[26] quia *et* mondus te Rege indiget. Data opera Inueni libellum editum per Illustrem Doctorem etate sua Medicorum Principem Petrum de Abano: in quo sigillanti[27] descripsit Species et Remedia Venenorum: *et* quem summo studio compositum dirrexit Nicolao .iii°. Summo Pontifici:[28] huncque ad te detuli vt insidias proditorum facilius queas superare. Additis in calce ipsius operis virtutibus nonnullorum lapidum: ex quibus pro tui tueve Clarissime (fol. 3ᵛ) Consortis conseruatione[29] aliquos conduxi. Vale Decus et presidium fidei Christiane.

[25] The famous English scholar (c. 730-804) who served Charlemagne from 781-790 in the revival of learning in France; cf. J. Bass Mullinger, *Schools of Charles the Great and the restoration of education in the ninth century* (1877) and Max Manitius, *Geschichte der lateinischen Literatur des Mittelalters* (München, 1911-31), I, 273-88.

[26] Charles did not long survive the return of the expedition. On the Saturday, April 7, 1498, while accompanying the Queen to witness a game of ball which was being played in the fosse of the castle of Amboise, Charles struck his head against the low archway of a gallery. Though the blow did not at first appear to trouble him, he was shortly thereafter seized with a stroke of apoplexy and died at the age of twenty-seven. Cf. Commines, *op. cit.*, ff. 167-8.

[27] A neologism (?); a noun formed from the present participle of *sigillare* [transitive], to seal.

[28] Nicholas III (Giovanni Gaetano Orsini) was Pope from November 25, 1277, to August 22, 1280; he was a politician who contributed little to the dignity of the Church. Cf. A. Demski. "Papst Nikolaus III" in *Kirchengeschichtliche Studien* (Münster, 1903).

[29] After Charles' death, Anne married his successor, Louis XII, on January 8, 1499. With Charles VIII, the direct line of Valois was ended, the crown passing to the Duke of Orleans, of the collateral branch of Valois-Orleans. Anne's life was a tragic one; the Dauphin died in August, 1495, and each of the three children she bore Charles in the succeeding years lived but a short space. By Louis XII, Anne had two sons and two daughters, both sons dying at birth. She died at Blois, January 9, 1514. Cf. Pichard, *op. cit.*

Though a modern critical edition is badly needed, the second tract in the manuscript, the well-known *De Venenis* by Petrus de Abano,[80] is not printed here chiefly because the manuscript is, in point of date, quite late and there are numerous earlier manuscripts [81] and printed editions available.[82]

The Lapidary,[83] however, which Pamoleus adds at the end of the book, is specially noteworthy. Most of the fifteenth-century lapidaries [84] are anonymous, whereas for this text we know not only the author but the purpose for which it was compiled; here the stones were specially selected for a particular individual and for a definite purpose. Although Pamoleus seems to have had little new to add to the then extensive knowledge (if such it may be called) of the medicinal value of stones, the selections show that the compiler had at least an intimate acquaintanceship with this field and had, apparently, read widely in it. He quotes from Albertus Magnus, Dioscorides, Matthaeus Silvaticus, Pliny, Marbode, Serapion, Albumasar, Razi, and Petrus Decembrius,[85] though with some of these

[80] On Petrus de Abano and his works, see Lynn Thorndike, *A history of magic and experimental science* (New York, 1929), II, 874-947 and Karl Sudhoff, *Kurzes Handbuch der Geschichte der Medizin* (Berlin, 1922), p. 197.

[81] Thorndike, *op. cit.*, pp. 922-3.

[82] Arnold C. Klebs, *Incunabula scientifica et medica* (Bruges, 1938), p. 251, no. 774. George Sarton, *The scientific literature transmitted through the incunabula* (Bruges, 1938) notes that Petrus de Abano was one of the twenty-five most popular authors in the fifteenth century (p. 183) and that the *De venenis*, with sixteen separate printings, was his most popular work (p. 190).

[83] For the general history of lapidaries, consult Thorndike, *op. cit.*; Joan Evans, *Magical Jewels* (Oxford, 1922); Mély and Ruelle, *Les lapidaires de l'antiquité et du moyen age* (Paris, 1898); L. Pannier, *Les lapidaires français* (Paris, 1882); Curt Bühler, *The sources of the Court of Sapience* (Leipzig, 1932), pp. 41-59; and Joan Evans and Mary Serjeantson, *English mediaeval lapidaries* (Early English Text Society, 1933).

[84] See, for example, the texts printed by Evans and Serjeantson, *op. cit.*

[85] Chaucer's "verray parfit praktisour" respected similar authorities (F. N. Robinson, *The complete works of Geoffrey Chaucer*, Boston and New York, 1933, p. 24):

> Wel knew he the olde Esculapius,
> And Deyscorides, and eek Rufus,
> Olde Ypocras, Haly, and Galyen,
> Serapion, Razis, and Avycen,
> Averrois, Damascien, and Constantyn,
> Bernard, and Gatesden, and Gilbertyn.

writers he was, probably, only acquainted at second hand. Oddly enough, Pamoleus even quotes from the *De venenis*, though the work itself immediately precedes the Lapidary and the same passage is thus found twice in the manuscript. He seems also to have known the *De natura rerum* of Thomas of Cantimpré and possibly Vincent of Beauvais' *Speculum naturale*.

The text, then, is illustrative of the firm belief in the curative as well as preventative properties of gems and stones in the late fifteenth century, and as such it may suitably take its place among the numerous lapidaries already published.

> Qve sint virtutes eorum lapidum quos detuli. Et Primo. De Allectorio.
>
> Allectorius secundum Albertum Magnum suo libello de Mineralib*us* tractatu secundo libri secundi. Capit*u*lo primo.[86] est gem*m*a que uocatur lapis galli: et est albus nitens: cristallo similis sed obscurior. Extrahitur autem de uentriculo gallinatij postq*ua*m excesserit quartu*m* annum: *et* quidam dicunt q*uod* post nouem annos extrahitur et melior qui extrahit*ur* de decrepito. Virt*us* eius est excitare venerem: gratum et constantem victorem et discretum facere: Oratoriam tribuit facultatem: conciliat amicos: tentus sub lingua sitim deprimit: *et* hoc ultimum dicit expertum. Diascorides[87] uero dixit: qui secum

[86] This passage follows closely the text as printed in Raymond Lull, *De secretis naturae*, Venice, Peter Schoeffer, 1543, where the text of the *De mineralibus* by Albertus Magnus is printed on pages 107-324. The editors are obliged to the courtesy of the New York Academy of Medicine for generously putting their large collection of early medical books at our disposal.

[87] "Hunc qui secum habuerit inuictus erit ut a multis probatum est. Nam gladiator eum habens in ore inuictus permanet et sine siti. Similiter et reges eum habentes fortiter bellabant et expulsi a regno non solum propriam dominationem uerum et alienam receperunt. Mulieribus proderit portatus que uolunt placere uiris. Nam probos et speciosos reddit portantes se." (Dioscorides, *De materia medica*, Morgan MS. 760, f. 36r). The text in the Morgan MS. follows that in the printed edition of Colle, 1478, which is usually attributed to Petrus de Abano (Thorndike, *op. cit.*, II, 923). On paleographical grounds, it is likely that the Morgan manuscript was written in Southern France about 1150, almost a century before Peter's birth. It seems likely, then, that this translation is really by Constantinus Africanus, to whom it is attributed in a Bamberg MS. (Thorndike, *op. cit.*, I, 610). For further notes on Dioscorides, see Bühler, *op. cit.*, 47-59. As the quotation from Dioscorides is also found in the *Pandects* of Matthaeus

habuerit Allectorium inuictus erit: vt a multis est probatum. Nam gladiator habens in ore permanet inuictus. et Reges illum habentes fortiter bellabant expulsique de regno non solum propriam dominationem (fol. 33ᵛ) verum etiam alienam receperunt. Mulieribus que uolunt placere viris suis portatus proderit: nam probos et spetiosos viros reddit portantes se: Ita refert Matheus Siluaticus [38] in suo libro pandetarum medicine: quem dirrexit ad Serenissimum Sicilie Regem Robertum. Capitulo ccccviii°. *Et* Plinius [39] in suo de naturali historia libro .xxxvii°. Capitulo .iiii°. dixit. Milonum crotonensem vsum hoc Lapide in certaminibus victorem euasisse: Et Euax Rex Arabie [40] qui scripsit librum de virtutibus Lapidum dirrectum Neroni Imperatori: sequitur hanc opinionem: *Et* scriptum reperitur in libris antiquissimis: [41] quod si quis vult habere uictoriam de inimico suo et ab aliquo non vinci: hunc lapidem portet in anulo aureo dextra manu: et ex vna parte anuli arma-

Silvaticus to which reference is made immediately below, it is probable that Pamoleus did not consult the original work but made his extract at second hand.

[38] "A great name in this group is Matthaeus Silvaticus, of the early part of the fourteenth century, surnamed Pandectarius, whose *Liber Pandectarum Medicinae* appeared at Naples on April 1, 1474, edited by Angelus Cato. This was a compend or dictionary designed to interpret the writings of the Arabs and Greeks, but Freind remarks that another dictionary would be needed to make it intelligible." Sir William Osler, *Incunabula medica* (Bibliographical Society, 1923), p. 24.

[39] "Alectorias uocant in uentriculis gallinaceorum inuentas crystallina specie, magnitudine fabae: quibus Milonem Crotoniensem usum in certaminibus, inuictum fuisse uideri uolunt." Pliny, *ed. cit.*, III, 288.

[40] Marbode, *Liber lapidum* in Migne, *Patr. Lat.*, CLXXI, 1742. For a discussion of "Evax," see Bühler, *op. cit.*, pp. 54-9.

[41] A similar passage may be found in Evans and Serjeantson, *op. cit.*, p. 51. [Note: as þ and y are indistinguishable in the MS., the editors have printed y throughout]:

Old men gafe hym a name Electoyr; & he yt wyll haue vyctory apon his enmy, & yt he sal noght be ouer-comen of no man, ber yis ston in a rynge of gold on his ry3te hand, & on yt oyer syde of ye hond I-graue a knyght armyd, his swerd in his hand, & efter yt lat syng ix messys apon ye rynge, yt is to say iij of ye Trinite, iij of ye Crosse, & iij of ye Martirs; & when a man has yis ryng a-pon hym, lok yt he make no defayle of synn.

In the notes to the text (p. 155), the editors state: "We do not know of any source for the instructions." Although no other parallel is known to us, it is interesting to note that there is a Latin source for the English text, and that this tradition was quite wide-spread.

tum militem sculpat cum ense in manu. Postea faciat cantari desuper tres missas de Sancta Trinitate: et tres de exaltatione sancte crucis: *et* totidem in honore om*n*ium Martirum: et q*ua*mdiu defert non eat ad turpitudinem.

[*Marginal note*: Fertur q*uod* Franci*sc*us Sfortia [42] Dux Mediolani inuictissim*us*: et etate *nost*ra om*n*ium fortunatissim*us* hu*n*c lapidem *con*tinue secu*m* h*ab*uit vsq*ue* ad ultimum vite.]

De Ethite seu Echite qui uocatur lapis aquileus.

Echites alias Ethites secundum ip*s*um Albertu*m* [43] eodem tractatu Cap*itulo* .v°. est opti*m*a gemmaru*m* coloris punicei: et uocatur aquileus a quibusdam id est Lapilus aquile: et ab alijs Herodialis: eo q*uod* (fol. 34[r]) aquile hunc h*ab*ent in nido: iuxta oua sua collocantes: Inuenitur autem iuxta littora maris occeani: et d*icitur* q*uod* aliqua*n*do in Persia: h*ab*ens intus alium Lapidem qui sonat in eo quando manu quassatur. Suspensus autem sinistro lacerto confert pregnantib*us* et impedit abortum: p*eri*culumve parturitionis mitigat: et dicunt quidam q*uod* caducor*um* prohibet frequentem casum: *Et* quod mirabilius est: tradd*un*t Caldei [44] q*uod* si de ministratione veneni cibus sit suspectus

[42] Francesco Sforza (1401-1466), claiming succession to the Dukedom through his marriage to Bianca, only daughter of Filippo Maria Visconti, overthrew the Ambrosian republic and proclaimed himself Duke of Milan in 1450. An able soldier and statesman, he established the Sforzas firmly in Milan. Pamoleus does not exaggerate here; compare, for example, the most complimentary note by Pope Pius II (*Opera geographica et historica*, Helmstadii 1699, p. 357).

[43] This is a somewhat condensed version of Albert's text; cf. *op. cit.*, pp. 181-2. For a very similar passage, compare Vincent de Beauvais, *Speculum naturale* [Strassburg: R-Printer, c. 1473], lib. ix, cap. 23:

Arnoldus de saxonia in libro de virtutibus lapidum. Ethites lapis est puniciei coloris: qui reperitur in aquile nidis. aut in persia aut in litoribus oceani. hic alium lapidem continet. & in sinistro suspensus lacerto: pregnantibus confert. casum caducorum prohibet. Contra etiam abortum et laborem pregnantis valet. Si de veneni fraude aliquis suspectus est. hic lapis sub eius cibo suppositus ipsum deglutire prohibet: si reus est. Si vero lapidem a cibo ipso subtraxeris: mox eundem cibum deglutiet.

On Arnoldus de Saxonia, see Valentin Rose, "Aristoteles De Lapidibus und Arnoldus Saxo" in *Zeitschrift für deutsches Altertum*, XVIII (1875), 321 sqq.; Thorndike, *op. cit.*, II, 430-2; Bühler, *op. cit.*, 48 *sqq.*

[44] Dr. Edith von Porada has most kindly pointed out that the belief in the medical properties of aetites goes back to a much earlier period. The Assyrian

positus hic lapis in eo cibo prohibet ne possit deglutiri cibus ille: Sed si lapis subtrahatur: mox deglutitur. Aiunt etiam quidam q*uod* si aliquis suspectus h*aber*etur de ministratione veneni: si in cibo eius quocu*m*q*ue* lapis inmittitur: statim ad cibum strangulatur: et quando subtrahitur cibum deglutit: si est reus: Sed si est innocens: non glutit cibum in quo lapis missus est. Secundum uero Serapionem [45] uocatur iste lapis a Grecis Aleuians partum: *et* hec proprietas est inuenta in hoc lapide: Et Albumasar [46] in suo lapidario dixit: q*uod* iste lapis est optimus ge*m*marum. Et Serapio procedens ulterius dixit q*uod* Aquila masculus defert hunc lapidem a partibus Indie: et supponit aquile pariture oua: facitq*ue* eam faciliter parere: aleuiatq*ue* dolorem eius: et hoc idem facit Mulieribus: om*n*ibusq*ue* animalibus quando ponitur sub eis in hora pa*r*tus. (fol. 34$^{r}$) Et Rasis [47] auctor est q*uod* suspendatur Mulieri in coxia quando debet parere: quia facit accelerare partum cum facilitate: et dicit se hoc expertum: et sic inuenisse: et om*n*es in hoc concordan*t*: q*uod* aleuiat partum: Evax [48] autem in suo lapidario Capitulo

names for the stones are "aban eri" or pregnant stone, with its enclosed "aban aladi" or birth stone; their virtues in Assyrian days were precisely the same as those noted by Albertus Magnus. Compare Reginald C. Thompson, *A dictionary of Assyrian chemistry and geology*, Oxford 1936, pp. 104-9.

[45] This passage, as the author notes, is taken from Silvaticus, cap. CCCCV. On Serapion, see Ludwig Choulant, *Handbuch der Bücherkunde für die ältere Medicin*, Leipzig, 1841, p. 345; Sudhoff, *loc. cit.*, p. 144.

[46] Albumasar (Abu Ma'shar Ja'far ben Muhammad al-Balkhi) is best known as an astrologer (Thorndike, *op. cit.*, I, 649-52). The English academic play *Albumazar* (1615) by Thomas Tomkis treats of a quack alchemist in a manner similar to Jonson's delineation of Subtle in *The Alchemist* (1610).

[47] "Next to Avicenna the greatest name in Arabian medicine is Rhazes, who lived in the tenth century and whose description of small-pox is still quoted in our text-books." Osler, *op. cit.*, p. 19. Compare also Choulant, *op. cit.*, p. 340; Sudhoff, *op. cit.*, p. 143.

[48]
Creditur ergo potens praegnantibus auxiliari,
Ne vel abortivum faciant, partuve laborent;
Appensus laevo solito de more lacerto.
Confert praeterea gestanti sobrietatem.
Auget divitias, et amari cogit habentem,
Victoremque facit, populique favoribus ornat.
(Migne, *Patr. Lat.*, CLXXI, 1755)

As these quotations are all found in Silvaticus, it does not necessarily follow that Pamoleus knew these works at first hand.

De lapide aquile dicit q*uod* suspensus in brachio sinistro conuenit pregnantibus. Conciliat amorem. Diuitias auget vbi fertur: et pregna*n*tibus impedit aborsum. Ita refert et sequitur Idem Matheus Siluaticus in premisso libro pandetarum Cap*itul*o ccccv°. Et Candidus [49] in suo libello De genitura hominis .viii°. Cap*itul*o dicens hu*n*c lapidem esse admiratione dignum: per hec verba laudat. Vidim*us* et ip*s*i ac plerunq*ue* experti sumus: q*uod* lapis Ethites Mulieri impo*s*itus aborsum prohibet. auertit part*us* discrimina: et feminam cum fetu p*re*stat incolume*n*. Et ne quis rem co*m*mentitiam putet: Plurime in Mediolanensi vrbe illius ope liberate sunt Mulieres: cum lapidem ip*s*u*m* a nobis h*ab*uissent.

De Iaspide viridi h*aben*te venas Rubeas.

Iaspis [50] est lapis multorum colorum: et h*abe*t dece*m* species: [51] melior tamen est viridis translucen*s* rubeas h*aben*s venas: et in argento proprie locandus: Expertum tamen est q*uod* stringit fluxum sanguinis et me[n]struum. Aiunt etiam q*uod* tegat (fol. 35[r]) conceptum et iuuat partum: et gestantem se a luxuria cohibet. In Magicis etiam legitur: [52] q*uod* si consecratus

[49] Petrus Candidus Decembrius (1399-1477), a well-known humanist, translator and author, served Filippo Maria Visconti as a secretary from 1419-47, a position which he also held under the Ambrosian republic. Subsequently he is found in the service of the King of Aragon and later with the Este family in Ferrara. (Cf. E. Ditt, *Mem. del R. Ist. Lomb.*, Classe di Lett., XXIV, 2, 21 ff.). Nine editions of his *De genitura hominis* appeared in the fifteenth century according to Klebs, *op. cit.*, no. 327.

[50] "Lapis iaspis secundu*m* Albertu*m* e*st* lapis multoru*m* colorum *et* habet spe*cies* dece*m*. melior tame*n* est viridis transpare*n*s habe*n*s *in* se venas rubeas. debet autem in argento proprie ligari hic in multis pa*r*tibus inuenitur. POSSE. expertu*m* est contra sanguinem et fluxum me*n*struorum. Ayunt autem q*uod* tegat conceptum *et* iuuat partu*m* et q*uod* gestantem se a luxuria *pro*hibet. Magicis etiam legitu*r* q*uod* si incantetur portante*m* reddit gratu*m* *et* potentem *et* tutu*m* *et* fugat febrem *et* hydropisim." Matthaeus Silvaticus, *Liber pandectarum medicinae*, Venice, Liechtenstein, c. 1480 (copy in the NYAcMed.). Cf. Albertus Magnus, *op. cit.*, p. 188.

[51] Iaspis has, according to the texts published by Evans and Serjeantson, *op. cit.*, either nine (pp. 23, 43 and 121) or seventeen species (p. 93). Isidore, *Liber etymologiarum* (Migne, *Patr. Lat.*, LXXXII, 572) writes: "Species ejus XVII."; so also Arnoldus de Saxonia, *op. cit.*, p. 437.

[52] Vincent de Beauvais, *Spec. nat.*, lib. IX, cap. 77, quoting from "Philosophus," writes: "Castum hominem se portante*m* tutu*m* facit et gratu*m*: si consecrata sit. noxia quoq*ue* fantasmata pellit."

est reddit gestantem se gratum et potentem ac tutum: fugat febres et ydropesim: *Et* hoc refert et sequitur idem Matheus dicto libro Pandetarum Capitulo .ccccIviii°.

De lapide qui reperitur in ventre Bouis.

In ventre Bouis reperitur tophus nigricans ad pille rotunditatem nullo pondere: singulare remedium egre parientibus: si tellurem non attigerit. Ita refert Plinius [53] libro .xi°. de naturali hystoria. capitulo .xxxvii°. in .iiii°. folio. Hic lapis quem detuli apud Corsos in uentre bouis repertus est. et magna cum diligentia conseruatus immondus.

De Lapide Ematite.

Ematites lapis multas habet virtutes secundum Albertum [54] libro suo Mineralium tractatu secundo libri secundi. capitulo .v°: *et* maxime quia ualet contra fluxum vesice: ventris *et* Menstruorum: quando contrictus in aqua mixtus bibitur. Sanat etiam fluxum saliue sanguinee. Limoque permixtus eius puluis sanat ulcera et vulnera: et etiam carnem superfluam in vlceribus natam corrodit: ac visus hebetes ex (fol. 35ᵛ) humida causa confortat: sanat et temperat asperitatem palpebrarum. *Et* quod mirabilius est: secundum Petrum de Abano [55] in suo libello premisso De remedijs venenorum Capitulo .v°. Scriptvm est in libro Regum Persarum. Si sculptus fuerit in hoc lapide Ematitis vir genuflexus cinctus serpente: cuius caput teneat dextra manus: et caudam sinistra: posuerisque lapidem hunc in aureo anulo: et sub lapide radicem serpentarie tritam: Portauerisque hunc

[53] Pliny, *loc. cit.* (Aldus, 1535, I, 288) says: "Et in iuuencarum secundo uentre pilae rotunditate nigricans tophus, nullo pondere: singulare (ut putant) remedium aegre parientibus, si tellurem non attigerit."

[54] This is a shortened version of the account given by Albertus Magnus, *op. cit.*, p. 183. For "Limoque" Albert has "Vino"; similarly Konrad von Megenberg in his *Buch der Natur* (Augsburg 1475, f. 264ʳ) states: "Wann man sein puluer mit wein mischet, so heylet er die geschwer."

[55] In the text of Petrus de Abano as written in the same MS., f. 15ᵛ, the passage reads:

Aliud est etiam quod scriptum est in libro Regum Persarum: quod si sculpire feceris in lapide ematitis virum genu flexum cinctum serpente: cuius caput teneat dextera manus et caudam sinistra: posuerisque lapidem hunc in aureo anulo: et sub lapide posueris radicem serpentarie tritam: portauerisque hunc anulum: ab omni ueneno preseruat: quod quidem ego quandoque preparari feci et ad predictum usum seruari.

anulum ab omni veneno preseruat: Quod quidem se preparari fecisse dixit: *et* ad predictum vsum seruari.

Benedictio et consecratio lapidum seu gemmarum.

Omnis [56] creatura in propria natura in qua a Deo est condita: est ab ipso benedicta. Sed pro peccato inobedientie corrupto primo homine deinde illa que propter hominem id *est* ad usus hominis creata fuerant: corrupta sunt: *et* sicut homo reparatur baptismo uel penitentia contrictione et confessione vt dignus efficiatur secundum statum primi hominis id *est* vt sit bonus et iustus: sic cetere res quibus in natura sua Deus virtutem donauit: consecrari debent: vt per sanctificationem recipiant priorem vim virtutum: que ex parte obfuscate (fol. 36[r]) fuerant: malis hominibus bonis rebus male utentibus. Debent ergo naturales lapides co[n]secrari. Pone igitur eos in panno nitido et mundo. Antequam dicatur Pax domini Dicat Sacerdos super illos istam benedictionem.

Oratio.[57]

Deus omnipote[n]s qui etiam per quasdam insensibiles creaturas omnibus uirtutem tuam ostendis: qui famulo tuo Moysi inter cetera sacerdotalia irrationabiles Duodecim lapides ponere precepisti: non propter illos lapides tantum: sed ut uirtutes quas

[56] A French version of this text is appended to Jean de Mandeville's *Le lapidaire en francoys*; see I. del Sotto, *Le lapidaire du XIV siècle . . . du Chevalier Jean de Mandeville*, Vienne 1862, p. 127. A German translation is found at the end of the lapidary in the *Buch der Natur, ed. cit.*, f. 280[r]. Vincent de Beauvais, *Spec. nat.*, lib. IX, cap. 29, says:

Sed sicut in peccato primi hominis omnis creatura corrupta est. Sic etiam in ipsis virtutes que post peccatum in eis remanserant per attactum et vsum immundorum et impiorum hominum: precipui *et* lapides corrumpuntur. Sed sanctificatione consecrationis ad virtutum efficacias reperantur.

[57] Except for a few variant readings of a minor sort, this prayer is the same as that found in the *De natura rerum* of Thomas of Cantimpré (Harvard College Library, Riant MS. 19, f. 76). It is also printed in J. B. Pitra, *Spicilegium solesmense*, Paris 1855, III, 337, in the *Histoire littéraire de la France*, XXX, 371, and in *Buch der Natur*, f. 280[r]. A slightly different prayer is found in Jean de Mandeville's lapidary (del Sotto, *op. cit.*, pp. 127-8). Rose (*op. cit.*, p. 345) notes that in one of the manuscripts (Prague [mixt.] XI C 2) which contains the lapidary by Arnoldus de Saxonia as well as a *De virtute universali* "den Schluss macht (grade wie in dem sogen. Lapidaire français composé par Jehan de Mandeville, und sonst, aus Thomas) ein Steinsegen (consecratio) zur Herstellung der verlorenen Kräfte der Steine."

ipsi significant hominem habere doceres: Quibus in Apocalipsi De duodecim Lapidibus id est de xii virtutibus quas ipsi significant Ciuitatem Celestem Ierusalem beato Ioanni Euangeliste construendam significasti. Deprecamur te domine sancte pater et maiestatem et clementiam tuam suppliciter exoramus: vt hos lapides sancti[illegible]ficare et conse[illegible]crare digneris: vt per sanctificationem tuam: et per tui sancti nominis inuocationem sint sancti[illegible]ficati et conse[illegible]crati: et recipiant effectus illarum uirtutum quas te docente et inspirante comperti sunt: et que illos habere in libro de virtutibus lapidum scribitur: et ut quicunque illos super se portauerit: tuam per illos virtutem sibi adesse cognoscat: et dona tue gratie tutelam (fol. 36ᵛ) que tue sancte virtutis vbique se habere congaudeat. Per Dominum nostrum Yesum Christum filium tuum qui tecum viuit et regnat in vnitate spiritus Sancti Deus. Per omnia secula seculorum.

De Custodia Lapidum.

Predicta benedictione facta habeantur lapides illi et teneantur custodianturve cum magna reuerentia. Quod enim sanctum est nisi cum sanctitate custodiri non potest. Ne ergo sancte rei violator existat quoniam aliquod sanctum portat peccare desistat: ne quod sibi prodesse debet noceat. Ne ve bonum in malum: uel dulce in amarum conuertatur. Obsunt enim multotiens bona malis: cum indigni presumunt de bonis. Cum uero bona prosunt malis: misericordia est. Cum mala prosunt bonis: correctio est. Cum autem bona bonis et mala malis dantu[r]: Iustitia est.

De Coralo.

Coralus secundum Albertum [88] in suo de mineralibus Capitulo .iij°. expertum est quod ualet contra quemlibet fluxum sanguinis: et collo suspensus dicitur valere contra epilensiam: contra

[88] Albertus Magnus, *loc. cit.*, p. 177. One of the English lapidaries states (Evans and Serjeantson, *op. cit.*, p. 125):

It waxeth in the sea as a grass, and when it is out of ye sea it is red and lyke a branch. It is no longer nor greater then halfe a foote. And as old maistres and authors do wryte, it defendeth and kepeth a man from lightning, thunder, and from tempest of wether. It is good in a vinierd or garden, it defendeth it from tempest. It makes ye fruit to encrease. It helpeth a man from faintness. It geueth man a good beginning and a good ending what contry yt he taketh.

tempestates: fulmina *et* grandines: et q*uod* principia expedit et fines negociorum:[59]

If we assume that Charles VIII actually did read the presentation volume, we must either believe that he did not follow the lapidary's advice or we are forced to the reluctant conclusion that the stones did not really possess the virtues which the present treatise claims for them. As thoughtful as Pamoleus unquestionably was in presenting this gift and as useful as Charles may have believed the manuscript to be, it served the king but ill in his short, unhappy career.

[59] Although the manuscript breaks off abruptly, nothing is wanting as the following (original) leaves are blank.

## *NOTES AND COMMENTS*

# MEDICAL HISTORY COLLECTIONS IN THE UNITED STATES AND CANADA *

## VI

## SPECIAL COLLECTIONS IN THE ARCHIBALD CHURCH LIBRARY

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

LOUISE WALKER
*Librarian*

It has been the policy of the Archibald Church Library to eliminate special collections wherever possible in the belief that most material was more useful in its logical position on the shelves. The inspirational and historical value of special collections has been supplied by special card indices, exhibits, reading outlines, etc. For that reason relative strength in the history of various subjects can only be estimated. The number of accessioned volumes (92,000) gives some idea of the Library's resources. We have listed below some of the collections of special types of material, chosen, not because we feel they are the most important part of the Library, but because we believe each to be unique in some way.

I. *Bookplates.*

A new collection of about two hundred bookplates, most of them of contemporary physicians and medical historians, together with correspondence from the owners and some interesting letters from distinguished doctors who do not have book plates. Representative are those of Donald Balfour, Logan Clendening, George W. Crile, Le Roy Crummer, Harvey Cushing, Geoffrey Keynes, E. B. Krumbhaar, Sir Walter Langdon-Brown, Arno B. Luckhardt, Rudolph Matas, George R. Minot, Sir D'Arcy Power, Sir James Purves-Stewart, David Riesman,

* See this *Bulletin*, 1939, Vol. 7, pp. 535-563; 1940, Vol. 8, pp. 1214-1245; 1941, Vol. 9, pp. 332-336, pp. 545-579.

Sir Humphry Davy Rolleston, George Sarton, Bertram W. Sippy, Casey A. Wood. Bookplates in volumes in the Library's possession are also being analysed.

II. *Stereopticon Slides.*

Four thousand slides, both clinical and historical, classified, catalogued and arranged in Multiplex display cabinets.

III. *Portraits.*

Five thousand portraits, catalogued, mounted, etc.

IV. *Manuscripts and Autograph Letters.*

Small manuscript collection including very fine J. B. Murphy material presented by Dr. Loyal Davis, the account books of N. S. Davis and other material connected with the history of Chicago medicine.

Two hundred letters including some from Benjamin Rush, Joseph Priestley, Sir Arthur Conan Doyle, John Warren, Mathew Carey, David Hosack, S. Weir Mitchell, Valentine Mott, Sir William Osler, Matthew Baillie, Rudolph Virchow...

Twenty-five Ceylon book-manuscripts or " olas ", Pali or Sinhalese text, ca. 1400-1700.

V. *Surgical Instruments, Medical Memorabilia, Medallions.*

One hundred boxes of instruments, some quite rare. The Library has a very sketchy checklist of these.

Small collection of medical medallions.

Some objects of association interest, particularly in connection with outstanding members of the Northwestern University medical faculty.

VI. *Early Works to 1800.*

These are catalogued under a special heading by century as well as in the regular file. Examples from famous presses are also listed separately under the name of the press.

A. Incunabula.

Four (three Albertus Magnus, one Thomas Aquinas).

B. Sixteenth Century.

Two hundred and eight items by one hundred and twenty-one authors, including such rarities as:—the English edition of *The Secretes of the Reverende Maister Alexis of Piemont* in four parts, 1562-1569; first edition of Bartisch, *Ophthalmoduleia,* 1583; Thomas Gale, *Certaine Workes of Chirurgerie,* 1563; original edition of Paré, *La Methode Curative des Playes,* 1561, and the first Latin edition of his works, 1582; Reisch, *Margarita Philosophica,* second original edition, 1504—famous for the oldest printed illustration of the structure of the eye; Tagliacozzi *De Curtorum Chirurgia per Insitionem,* 1597; the 1555 and 1568 editions of Vesalius, *De Humana Corporis Fabrica.*

C. Seventeenth Century

Eight hundred and thirty items by four hundred and sixteen authors including:—twenty works by Robert Boyle; twelve editions of Sir Thomas Browne; eleven editions of William Harvey including the first Latin and first English editions of his *Anatomical Exercitations* and the 1639, 1648, 1660, and 1673 editions of *De Motu Cordis*; eight editions of Paré including the first English edition of the works (1634), second English edition (1649) and the 1664 French edition; first editions of Glisson, *Anatomia Hepatis,* Walter Harris, *Pharmacologia Anti-empirica,* Clopton Havers, *Osteologia Nova,* Nathaniel Highmore, *De Hysterica,* Malpighi, *Opera Omnia,* John Mayow, *Tractatus Quinque Medico-physico-anatomico-medicus de Respiratione usuque Pulmonum,* Wharton, *Adenographia.*

D. Eighteenth Century.

Twenty-two hundred items by twelve hundred and fifty-five authors including firsts by Cheselden, Defoe, Gamelin, the Hunters, Jenner, Mascagni, Morgagni, Percival Pott, Soemmerring, Spallanzani, Valsalva, Withering, to mention only a few.

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| Louisiana | 5 |
| Maryland | 33 |
| Massachusetts | 18 |
| Michigan | 13 |
| Minnesota | 4 |
| Missouri | 11 |
| Nebraska | 4 |
| Nevada | 1 |
| New Jersey | 12 |
| New Mexico | 1 |
| New York | 80 |
| North Carolina | 7 |
| Ohio | 24 |
| Oklahoma | 4 |
| Pennsylvania | 62 |
| Rhode Island | 4 |
| South Carolina | 3 |
| Tennessee | 1 |
| Texas | 2 |
| Utah | 1 |
| Virginia | 8 |
| Washington | 1 |
| West Virginia | 4 |
| Wisconsin | 7 |
| Total United States | 401 |
| Canada | 17 |
| Central and South America | 5 |
| Abroad | 8 |
| Grand Total | 431 |

## SUMMARY

| | 1942 | 1941 | 1940 |
|---|---|---|---|
| Constituent Societies | 20 | 18 | 15 |
| Honorary Members | 15 | 12 | 11 |
| Active Members | 393 | 403 | 355 |
| Corresponding Members | 3 | 1 | — |
| Total | 431 | 434 | 381 |

## *ANNOUNCEMENTS*

### AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

The *Eighteenth Annual Meeting* will be held in Atlantic City on May 3-5, 1942.

Members intending to present a paper are requested to announce it to Dr. J. H. Elliott, 11 Spadina Road, Toronto, Ontario, Canada, *as soon as possible.*

### CONSTITUENT SOCIETIES

*The Johns Hopkins Institute of the History of Medicine.*

The *Third Graduate Week in Medical History* will be held from April 27 to May 2, 1942. This is the week preceding the Annual Meeting of the American Association of the History of Medicine so that participants of the Graduate Week will be able to proceed directly from Baltimore to Atlantic City.

The general subject of the course will be *Contributions of Greece and Rome to Medicine* whereby emphasis will be placed not on the theories of ancient medicine but on its practical achievements.

The program foresees:

*A. Lectures,* followed by general discussions.

1. A Hippocratic Physician Treats a Pneumonia Patient..... Henry E. Sigerist
2. A Hippocratic Surgeon's Practice.....O. Temkin.
3. A Medical Student in Alexandria.....I. E. Drabkin.
4. Anatomical Demonstration in Antiquity.....O. Temkin.
5. Soranus Makes a Delivery.....A. Guttmacher.
6. Hygiene in Every Day Roman Life.....H. T. Rowell.

*B. Seminars.*

1. Bibliography of Greek and Roman Medical Literature..... Henry E. Sigerist
2. The Cult of Asclepius.....Ludwig Edelstein.
3. Drug Lore and Drug Trade in Greece and Rome..G. R. Thompson.
4. Greek and Latin in Medical Terminology.....Ludwig Edelstein.

*C.* A *Meeting of the Johns Hopkins Medical History Club* at which Dr. David M. Robinson, Professor of Archaeology, will give an illustrated lecture on "The Excavation of Olynthus."

*D. Visits* to the Archaeological Museum of the University and to the Tudor and Stuart Club.

*E. Exhibits.*

Medicine in Greece and Rome.
Graeco-Roman Medical Literature.

The final program will be sent to all members of the American Association of the History of Medicine in January.

*Indiana Association of the History of Medicine.*

On December 12, 1941, the Association held a joint meeting with the Indiana History Association. Dr. Burton D. Meyers, former Dean of Indiana University School of Medicine, gave a paper on "The History of Medical Education in Indiana."

The *New York Society for Medical History* is holding a meeting on January 8, 1942. Dr. Arturo Castiglioni will present a paper on "The Serpent in the History of Medicine."

## NATIONAL NEWS

*History of Science Society*

The Annual Meeting of the History of Science Society was held in Chicago on December 30-31, 1941 in association with the American Historical Association. The following sessions were held at the Hotel Stevens:

Tuesday, December 30, 10.00 a. m.

*Mediaeval Science*

Chairman: Richard P. McKeon, University of Chicago.
"Natural Science and Naturalistic Art in the Middle Ages,"
Lynn White, Jr., Stanford University.
Commentator: G. de Santillana, Massachusetts Institute of Technology.
"Optical Theory and the Metaphysic of Light in the Middle Ages and Renaissance," I. Bernard Cohen, Harvard University.
Commentator: Richard P. McKeon, University of Chicago.

Tuesday, December 30, 2 p. m.

*The Classical Period of Modern Medicine*

"Some Aspects of Sprat's *History of the Royal Society*,"
Dean Dorothy Stimson, Goucher College.
"Adrien Auzout: some biographical notes,"
Harcourt Brown, Brown University.
"Bentham and Medical Thought,"
Benjamin Spector, Tufts College Medical School.

Wednesday, December 31, 10 a. m. (Joint Session with the American Historical Association).

*History of Disease and Demography*

Chairman: Arno B. Luckhardt, University of Chicago.
"Evolution in the Application of Medical Science,"
Esmond R. Long, University of Pennsylvania.
"Changes in the Social Distribution of Disease,"
Henry E. Sigerist, The Johns Hopkins University.
"The Epidemic Constitution in Historical Perspective,"
Iago Galdston, New York Academy of Medicine.

On both days there were luncheon-conferences of the Council of the Society.

*The American Association of Colleges of Pharmacy* appointed as its Historian Dr. George Urdang as successor to Dr. Kremers.

*Beaumont Medical Club, New Haven, Conn.*

The sixty-fourth regular meeting of the Beaumont Medical Club was held in The Beaumont Room of the Yale Medical Library on Friday, December 12, 1941 at 4.30 P. M.

The following program was presented:

1. Weir Mitchell on Reflex Paralysis, March 10, 1864.
Clements C. Fry and John F. Fulton.
2. The Physician Friends of Joseph Farington, R. A.
George H. Smith.

Afterwards, a dinner was held at The Graduate Club.

*Robert Sonnenschein Study Group for Medical History, Chicago, Ill.*

Dr. Arno B. Luckhardt, Professor of Physiology at the University of Chicago, gave a lecture on "Dr. William Beaumont and the Medical Epic of the Northwest Territory" on December 10, 1941 at Michael Reese Hospital.

*Bio-Bibliography of XVI Century Medical Authors.*

The first fasciculus has just been published as Third Supplement of the Fourth Series of the Index Catalogue of the Library of the Surgeon General's Office (Army Medical Library). The Bio-Bibliography is the work of Claudius F. Mayer, Editor of the Index-Catalogue and Assistant to the Librarian, and in its comprehensiveness it promises to be one of the most valuable reference books ever written. It contains far more than the usual bio-bibliographical dictionaries. The articles include the author's name with dates, synonyms of names and pseudonyms, carefully checked biographical data, biographical references and, whenever possible, a portrait. The works are listed with the opera omnia and opera selecta first, all editions and translations are described in chronological order. The rarity of an edition, its

price on the book market, the libraries in which copies can be found are indicated. Also listed are non-existent or ghost editions, manuscript works and spurious works.

The Bio-Bibliography does great credit to its author and to the Army Medical Library which once more appears not only as an important department of the United States Army but as a cultural institution of international significance.

## NEWS FROM LATIN AMERICA

*Brazil*

Dr. Juan Ramón Beltrán, professor of the history of medicine at the University of Buenos Aires, was invited to given a course of lectures at the National University of Brazil in Rio de Janeiro in September, 1941. He discussed the following subjects:

1. Magia, héroes y sacerdotes en la medicina primitiva de los griegos.
2. Influencia de los filósofos en la medicina griega.
3. La medicina hipocrática.
4. La medicina griega después de Hipócrates.

In addition he gave two lectures at the Escula de Medicina y Cirurgía on "La anatomía de Galeno" and "Los precursores de Hahnemann."

## NEWS FROM EUROPE

*England*

From *Proceedings of the Royal Society of Medicine, Section of the History of Medicine,* vol. XXXIV, 1941, p. 811 (Sectional, p. 53):

"One night in November 1940 a high explosive bomb fell through a skylight in the library of the Royal College of Physicians. The College had already been damaged in October, but the November hit was the more destructive. Half the library was open to the sky, the floor at the point of penetration was found to be sagging, blast blew the glass from the bookcases, and hundreds of books were scattered. The force of the explosion was demonstrated by the small metal fragments which were found embedded in a few of the volumes. Fortunately precautions had been already taken for the most valuable books from the XVI and XVII century (pre the Great Fire) collections and for the Dorchester and Lloyd Roberts bequests. Among the remainder there was surprisingly little damage, although most of them were covered in white dust from fallen plaster. A few volumes were cut by glass. Others lost leaves which were carefully salvaged.

"However, the damaged roof was a great danger to the books. With the assistance of the Royal Society of Medicine's staff, the staff of the College were able to remove the volumes, which were sent to the Secretary's house to be stored. They were removed just in time to save them from damage by heavy rain.

"Thus the damage to the building was great but not for the moment irreparable. The books were saved, and some of them are those that survived also the Great Fire of 1666."

*Switzerland*

The three-hundredth anniversary of the death of *Paracelsus* was commemorated in *Einsiedeln*, his birthplace, on October 4 and 5, 1941. The celebration was opened in the Abbey of Einsiedeln and the following papers were presented in two sections, one devoted to the philosophy, the other to the medicine of Paracelsus:

1. *Philosophical Section*:

   Hans Kayser: Paracelsus.
   Walter Bigler: P. als religiöser Mensch.
   Erwin Jäckle: Agrippa von Nettesheim und P.
   Richard Herbertz: P. bei Schopenhauer.
   Pater Ildefons Betschard: P. in religiöser Schau.
   Fritz Medicus: P. in der philosophischen Bewegung seiner und unserer Zeit.

2. *Medical Section*:

   Th. Oettli: Allgemeingültiges und Zeitbedingtes beim Arzte P.
   C. G. Jung: P. als geistige Erscheinung.
   Bernhard Milt: Gesundheit und Krankheit, Krankheit und Heilmittel bei P.
   Kurt von Neergaard: Was lehrt uns P. für die weitere Entwicklung der Medizin?
   J. Strebel: P. und die Augenheilkunde.
   J. Karcher: P., Stadtarzt von Basel und Vesal.
   A. L. Vischer: Ueber Porträtbildnisse des P.
   E. Jenny: P. als Arzt.
   J. A. Häfliger: Beitrag zu Paracelsuskritik.
   René Allendy: La psychiatrie de P.
   René Jaccard: Paracelsus.

The papers will be published as a volume. A new biography *Paracelsus, der Mensch der Zeitwende* by Pater Ildefons Betschard (Verlag Benziger, Einsiedeln) was published for the occasion, a play by Max Geilinger, *Das Spiel von Paracelsus,* was performed, and a new monument was dedicated.

## BOOK CATALOGUES

Dolphin Book Shop, 415 Woodland Street, Nashville, Tenn.: Winter Catalogue, Americana, Part I. American Local History; Part II. American Medical History.